1999-09

A comparative analysis of selected heavy equipment functions at the Naval Support Activity Monterey Bay and the city of Monterey, California

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NAVAL POSTGRADUATE SCHOOL
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THESIS

A COMPARATIVE ANALYSIS OF SELECTED HEAVY EQUIPMENT FUNCTIONS AT THE NAVAL SUPPORT ACTIVITY MONTEREY BAY AND THE CITY OF MONTEREY, CALIFORNIA

by

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September 1999

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REPORT DOCUMENTATION PAGE

Form Approved OMB No. 0704-0188

1. AGENCY USE ONLY *(Leave blank)*	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED
	September 1999	Master's Thesis

4. TITLE AND SUBTITLE
A COMPARATIVE ANALYSIS OF SELECTED HEAVY EQUIPMENT FUNCTIONS AT THE NAVAL SUPPORT ACTIVITY MONTEREY BAY AND THE CITY OF MONTEREY, CALIFORNIA

5. FUNDING NUMBERS

6. AUTHOR(S)
Petty, Anita S. and Pfefferkorn, Jessica M.

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
Naval Postgraduate School
Monterey, CA 93943-5000

8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)

10. SPONSORING / MONITORING AGENCY REPORT NUMBER

11. SUPPLEMENTARY NOTES
The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.

12a. DISTRIBUTION / AVAILABILITY STATEMENT
Approved for public release; distribution unlimited.

12b. DISTRIBUTION CODE

13. ABSTRACT *(maximum 200 words)*

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14. SUBJECT TERMS
Outsourcing, Partnering, Heavy Equipment, A-76 Competitions, DoD, Cost Analysis, Cost Savings, Public Works

15. NUMBER OF PAGES
132

16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFI- CATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
Unclassified	Unclassified	Unclassified	UL

NSN 7540-01-280-5500

Standard Form 298 (Rev. 2-89)
Prescribedby ANSI Std. 239-18 298-102

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MASTER OF SCIENCE IN MANAGEMENT

from the

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To meet continuing budget and personnel limitations and to fund weapons modernization, DoD is increasing its emphasis on outsourcing support activities to reduce costs and increase efficiencies. Recent studies suggest that aggressive outsourcing of support activities by the DoD could produce billions of dollars in savings. This thesis examines the applicability of outsourcing and partnering initiatives at the Naval Support Activity, Monterey Bay (NSAMB), and the City of Monterey, California to reduce selected heavy equipment management costs. To address this issue, a review of business practices and industry publications associated with vehicle fleet management, relevant financial and maintenance data from both entities, and semi-structured interviews with a total of 15 individuals from both organizations, were conducted. Findings indicate that NSAMB and the City of Monterey could benefit from a partnering arrangement for selected heavy equipment functions. However, organizational climate issues (i.e., employee trust) must also be considered when making the decision to outsource or partner. This study indicates that outsourcing and partnering initiatives may increase employee stress and distrust which must be managed concomitantly with cost reductions.

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LIST OF ABBREVIATIONS

APWO	Assistant Public Works Officer
CAN	Center for Naval Analysis
CESE	Civil Engineering Support Equipment
CII	Construction Industry Institute
CNO	Chief of Naval Operations
COMNAVFAVENGCOM	Commander, Naval Facilities Engineering Command
CORM	Commission on Roles and Missions
CSRS	Civil Service Retirement System
CY	Calendar Year
DFAS	Defense Finance and Accounting Service
DLIFLC	Defense Language Institute Foreign Language Center
DoD	Department of Defense
DoDIG	Department of Defense Inspector General
DRMO	Defense Reutilization and Marketing Organization
FASTDATA	Funds Administration Standardized Document System
FERS	Federal Employee Retirement System
FFP	Firm Fixed Price
FICA	Federal Insurance Contribution Act
FNMOC	Fleet Numerical Meteorological Operations Center
FTE	Full Time Equivalent
FWS	Federal Wage Schedule
GAO	Government Accounting Office
GSA	Government Services Administration
IO	Inventory Objective
IPT	Integrated Product Team
MEO	Most Efficient Organization
MILSPEC	Military Specification
NAS	Naval Air Station
NAVFAC	Naval Facilities
NPDES	National Pollution Disposal Elimination System
NPS	Naval Postgraduate School
NSAMB	Naval Support Activity, Monterey Bay
OMB	Office of Management and Budget
OSD	Office of the Secretary of Defense
PACDIV	Pacific Division
PCSD	President's Council on Sustainable Development
PD	Position Description
POM	Presidio of Monterey
PW	Public Works
PWD	Public Works Department/Director

PWO	Public Works Officer
PWS	Performance Work Statement
QDR	Quadrennial Defense Review
RBA	Revolution in Business Affairs
RIF	Reduction in Force
SECNAV	Secretary of the Navy
SJO	Standing Job Order
STARS	Standard Accounting System
TCAR	Transportation Cost Annual Report
TEMC	Transportation Equipment Management Center
TMAV	Transportation Management Assist Visit
TSP	Thrift Savings Plan
UIC	Unit Identification Code
USACE	U. S. Army Corps of Engineers
USC	U. S. Code
VMD	Vehicle Maintenance Division
WG	Wage Grade
WHE	Weight Handling Equipment

I. INTRODUCTION

A. BACKGROUND

This thesis examines and compares management cost practices for selected heavy equipment functions at the Naval Support Activity, Monterey Bay (NSAMB) and the City of Monterey. It analyzes outsourcing and partnering for select heavy equipment functions at the two organizations. It draws conclusions concerning the efficacy of outsourcing and partnership initiatives between the two organizations and explores outsourcing heavy equipment functions to private industry.

The City of Monterey appears to enjoy a predictable tax base, a stable business environment, and small-town control of government functions including managing over 176 vehicles and 62 pieces of vehicular equipment. Similarly, NSAMB manages a fleet of approximately 79 vehicles and 70 pieces of vehicular equipment to support the Navy's graduate education institution, the Naval Postgraduate School. Both entities are facing vehicle management challenges related to changing missions, diverse stakeholder requirements, and pressures to cut costs. This study examines the roles of outsourcing and partnering as alternative management practices and how they impact select heavy equipment functions.

B. PURPOSE

This thesis examines the applicability of outsourcing and partnering initiatives for selected heavy equipment functions at NSAMB and the City of Monterey. To provide the appropriate context, the current organizational structures of each entity and their respective organizational climates are reviewed. Drawing on this background, the advantages and disadvantages of outsourcing and partnering within the two organizations are examined. Finally, conclusions and recommendations are made regarding implementing outsourcing and partnering initiatives of heavy equipment functions at NSAMB and the City of Monterey.

C. RESEARCH QUESTIONS

1. How do NSAMB and the City of Monterey, California compare regarding heavy equipment cost management practices?

2. How can the organizational climate be compared between NSAMB and the City of Monterey in terms of climates conducive to outsourcing and/or partnering as future alternatives?

3. What are the advantages and disadvantages of outsourcing and partnering based on literature and case examples relevant to the topic?

4. How can heavy equipment management functions be compared between NSAMB and the City of Monterey in terms of efficiency of cost functions? What are the actual costs for street sweeping and storm drain maintenance at NSAMB and the City of Monterey?

5. Should NSAMB or the City of Monterey outsource or partner to reduce select heavy equipment management costs?

D. SCOPE AND METHODOLOGY

This study focuses on selected heavy equipment functions of two public entities, the NSAMB Public Works Department Transportation Division and the City of Monterey Vehicle Maintenance Division.

The data for this study are derived from extensive review of business practices and industry publications associated with managing a fleet of vehicles. Relevant financial and maintenance data are compared between the two entities, and semi-structured interviews were conducted with a total of 15 individuals from both organizations, including civilian and military managers, comptroller personnel, and various customers and primary stakeholders.

E. BENEFIT OF THE STUDY

This thesis compares the management practices for selected vehicle functions at NSAMB and the City of Monterey. By describing and analyzing the key issues, the study will highlight areas of management concern, propose methods for cost reduction, and explore outsourcing and partnering possibilities. In the process, these two public organizations are compared and contrasted to better understand the business concepts associated with managing selected vehicle functions.

F. ORGANIZATION OF THE THESIS

The following chapters study the heavy equipment management practices used by the NSAMB and the City of Monterey. Chapter I introduces and outlines the study. Chapter II reviews the outsourcing and partnering literature and defines the terms as they apply to this study. Chapter III describes the vehicle management organizations and climate at NSAMB and the City of Monterey. Chapter IV quantitatively analyzes data collected on selected heavy equipment functions. Chapter V summarizes the advantages and disadvantages of outsourcing and partnering at both entities. Chapter VI discusses the conclusions of the study, recommendations, and potential areas for future research.

II. LITERATURE REVIEW

This chapter provides an overview of competitive sourcing or outsourcing, and the business practice known as partnering. Competitive sourcing, outsourcing, and partnering are defined and a brief background of their origins is provided. Characteristics of successful and unsuccessful outsourcing and partnering programs are presented and examples are provided from the private and public sectors. According to the 1998 Defense Reform Initiative, the basic difference between competitive sourcing and outsourcing is that the former assumes a level playing field in terms of continual assessment and improvement of government practices based on competitive forces. Outsourcing, on the other hand, assumes that functions may best be done outside government control. A study is done to decide if a function is ultimately outsourced or retained. For the purposes of this study the term outsourcing will be used for analytical and comparative purposes.

A. OUTSOURCING

1. Definition

For the purposes of this study, outsourcing is defined as follows:

> The government retains ownership and control over operations of the activity through surveillance of the contract. The primary method of outsourcing activities is through cost comparison procedures designed to determine the most efficient and cost effective operation (OMB, 1996).

The Office of Management and Budget's *A-76 Supplemental Handbook* provides the guidelines for commercial studies in the Department of Defense. To compare the costs of in-house and contractor performance, Circular A-76 requires an agency to first review and define what it considers to be the most efficient organization (MEO). Based on this MEO, an in-house cost estimate is prepared and compared to private sector offers

(OMB, 1996). Selection is then based on the best value for the government. The government defines best value as the best combination of cost factors and non-cost factors such as quality, reliability, maintainability, and risk. Best value does not necessarily mean lowest price.

2. Background

a) Outsourcing in the DoD

A March 1996 DoD article, "Improving the Combat Edge Through Outsourcing," assumes the DoD is facing unprecedented change. These changes reflect an array of factors including rapidly evolving global political conflicts and increasing operational and personnel commitments placed on U.S. forces. The United States defense strategy has changed from preparing for global war to managing multiple regional conflicts. Funding and manpower to support numerous regional conflicts seems inadequate. The DoD article says defense structure and manpower is roughly one-third smaller than it was in the 1980s and the budget has declined by almost 40 percent (in real terms) from its peak in 1985.

To meet the continuing budget and personnel limitations and to fund weapons modernization, DoD increased its emphasis on outsourcing support activities to reduce costs and increase efficiencies. Recent studies by the Center for Naval Analysis (CNA, April 1996) and the Government Accounting Office (GAO, March 1997) suggest that DoD could save billions of dollars by aggressively outsourcing support activities. In fact, of the approximately 2,000 outsource studies conducted to date, roughly 50 percent are outsourced and 50 percent are retained. Of those outsourced, savings to the government average about 30 percent (Defense Reform Initiative, 1997).

In 1966, OMB issued Circular A-76, which established federal policy for the government's performance of commercial activities and set forth the procedures for studying commercial activities for potential savings. It stated:

> The Federal Government shall rely on commercially available sources to provide commercial products and services. In accordance with the provisions of this Circular, the Government shall not start or carry on any activity to provide a commercial product or service if the product or service can be procured more economically from a commercial source (OMB, 1983, p.2).

This document initiated the Federal Government's endorsement of outsourcing and served as a catalyst for DoD to begin shifting its support services to the private sector. In 1979, OMB issued a supplemental handbook that spelled out the procedures for competitively determining whether commercial activities would be most economically performed in-house, by another federal agency, or by the private sector. OMB revised the handbook in 1983 and again in 1996.

Despite this well-defined policy framework, DoD outsourcing has occurred on a relatively modest scale (Robbert, Gates, and Elliot, 1997). As previously mentioned, the military services and defense agencies have, over the past several decades, completed over 2,000 cost-comparison studies. The early 1980s witnessed the heaviest activity when almost 300 cost-comparisons were completed (Robbert, Gates, and Elliot, 1997). Declining interest was equally dramatic. By the mid-1990s, the level of effort was less than ten studies per year (Robbert, Gates, and Elliot, 1997). The decline began in 1989 when Congress directed the Secretary of Defense to delegate the sole authority to commission an A-76 study to base commanders (10 USC 2468). Base commanders were reluctant to initiate actions that could eliminate government jobs under their command. Thus, this statute had an immediate effect on the number of public/private competitions undertaken. Another example of legislative influence is Public Law 102-484, section 312, October 1992. This law established a 17-month moratorium on awarding of service contracts resulting from A-76 studies under Circular A-76 (DoDIG, 1995).

In May 1995, the Commission on Roles and Missions of the Armed Forces (CORM), an ad hoc study group formed under the National Defense Authorization Act for Fiscal Year 1994, refocused DoD's attention on outsourcing (Camm, 1996). The Commission's report stated:

> We recommend that the government in general, and the Department of Defense in particular, return to the basic principle that the government should not compete with its citizens. To this end, essentially all DoD "commercial activities" should be outsourced, and all new needs should be channeled to the private sector from the beginning (CORM, 1995, p. 3).

Shortly after the CORM report was issued, its chairman, John P. White, was appointed Deputy Secretary of Defense. In that capacity, he initiated a comprehensive review to identify and act on outsourcing opportunities within the DoD (DoD, 1996).

In summary, outsourcing functions to the private sector is not a new trend, but is often controversial (Burman, 1998). GAO data show that 53 DoD competitions were completed between October 1995 and March 1998, involving 5,757 positions (2,531 civilian and 3,226 military) (GAO, 1999). While military positions are candidates for outsourcing, the CNO Outsourcing Program Advisory 97-1 delineates specific guidance regarding military billets. The subject of outsourcing military billets is beyond the scope of this thesis.

b) Outsourcing in the Private Sector

American business organizations are also undergoing similar business environment changes and challenges. Market competition has become global and companies are faced with rapidly changing and increasingly complex business environments (Pyles and Cohen, 1993). U.S. companies and public sector organizations have taken many steps to remain competitive including downsizing, restructuring, or reengineering their organizations. Normally, such reorganization calls for a reduction in personnel either through reducing layers of management or by letting contractors provide functions rather than in-house personnel. Strategically using outside providers to perform activities traditionally handled by internal staff and resources is commonly known as outsourcing. The ongoing global revolution in commercial business practices is encouraging organizations to outsource much of what they used to do in-house and to focus on their core competencies (Prahalad and Hamel, 1990).

Core competencies are areas where a company can "achieve definable preeminence and provide unique value for customers" (Quinn, Doorly, and Paquette, 1990, p.79). These are areas where the company performs best and should cultivate to become or remain an industry leader. According to the Outsourcing Institute, a professional association founded in 1993 to provide objective and timely information on the strategic use of outside resources, an organization must first define its core competencies and those functions of the business that are not core. The organization should then outsource its non-core functions so that it can focus on its core competencies (Outsourcing Institute, 1998). The core competencies must be identified and retained in-house to optimize survival and success.

The perceived benefits of outsourcing support functions are similar for the DoD and private sector. Both the DoD and the private sector seek cost savings and increased efficiency to achieve their goals and compete successfully in today's complex business environment.

3. Elements of Successful Outsourcing Programs

For the purposes of this study, a successful outsourcing program is defined as one that saves money or resources (material and personnel). According to Savas (1987), outsourcing in the public sector works well under the following conditions: (1) a clear and concise performance work statement (PWS) exists; (2) a competitive climate exists or is created and sustained; (3) and the government is able to monitor the contractor's performance. A survey conducted by the Outsourcing Institute (1998) found additional factors relevant to successful outsourcing, including management of relationships, a properly structured contract, and careful attention to personnel issues. In summary, the factors of successful outsourcing considered most relevant to this study include the following:

(1) **A clear and concise performance work statement.** A statement of work or performance work statement is a clear and concise statement that describes the contract work to be performed and incorporates any applicable specifications (OMB, 1996). The

PWS scope and the elements can vary greatly, depending on the function being competed (OMB, 1996). The PWS for a major system is complex and detailed, however a PWS for lawn-mowing service would be simple and straightforward.

(2) **A focus on competition.** Competition is the economic foundation on which the ability to control costs is built (Gates, 1998). When placed in a competitive environment, an organization must analyze its current structure and identify inefficiencies and excess capacity to submit its best proposal. In addition, competition fosters innovation in the ways that a given function is accomplished. An April 1996 CNA report confirmed these beliefs when it concluded that competition, not outsourcing, was the key to savings as the winner generally used fewer people to perform the work.

(3) **Effective contract management.** The quality assurance surveillance plans, which accompany the PWS, define the performance criteria used to monitor the contractor (OMB, 1996). The size and complexity of the function outsourced will determine the resources and personnel needed to conduct the performance reviews (GAO, 1999). For example, the Naval Telecommunications Station, Stockton, California competed one function at one location and required only two government personnel to oversee the contract. The Defense Finance and Accounting Service, on the other hand, had multiple services and locations and required 15 government personnel to oversee the telcom contract. It is important to ensure an adequate number of personnel are written into the original proposal to monitor the contract (GAO, 1999).

(4) **Management of relationships**. Bryson (1995) states that the key to success for public and private organizations is the satisfaction of key stakeholders. For the purposes of this study, stakeholders include those who have a claim on the organization's output or resources such as employees' (internal), customers (external), and resource suppliers (external). Young (1987) takes this a step further by stating that the success of an organization can be attributed substantially to its employees quality of work and how well its employees are motivated to contribute to the organization's mission. In short, interorganizational and intraorganizational stakeholder management and collaboration is integral to outsourcing and partnering.

4. Elements of Unsuccessful Outsourcing Programs

Numerous studies and GAO reports have been completed on the DoD's use of outsourcing. Some of the commonly cited characteristics of unsuccessful outsourcing programs mirror those of a successful outsourcing program. The following list is derived from literature and GAO reports on outsourcing: (1) ambiguous work statements or new missions; (2) few competitors in the market; (3) poor contractor performance.

(1) **Ambiguous PWS or new missions.** A 1999 GAO review of 53 contracts (from October 1995 to March 1998) found that 18 of the 53 contracts required changes or termination due to inadequate statements of work or new work requirements. The report specifically cited the grounds maintenance contract at Keesler Air Force Base, Mississippi which was terminated because the PWS did not adequately reflect the work that had to be done (GAO, 1999). A 1985 GAO report found similar results in a review of 20 DoD contracts. Specifically, it found that 15 of the 20 contracts had price increases resulting from additional work and authorized wage increases (GAO, 1985).

(2) **Few competitors in the market.** According to Rosen (1999), market competition encourages competitors to increase efficiency, improve quality, reduce costs, and focus on customer's needs. Without an adequate number of suppliers to fill the government's needs, it is difficult to control costs, product quality, and timeliness of product delivery. A market with only a few competitors gives the suppliers market power over the government in determining prices. In a market with numerous suppliers, market forces work in the government's favor by encouraging competitors to keep prices low and product quality high.

(3) **Poor contractor performance.** Poor contractor performance is defined as failure to comply with contract specification or failure to provide the product or service on time. This factor was cited in a 1999 GAO report as an implementation problem in two of the 53 competitions it studied. It specifically cited a storage and warehousing contract at Fort Riley, Kansas as being cancelled after only one performance period due to poor contractor performance.

5. Examples of Successful Outsourcing Programs

The position that private firms are more efficient and effective than public agencies has some support. New York City, for instance, was losing as much as $2 million a year on five public golf courses before it turned their management over to the American Golf Corporation in 1983 (Holzinger, 1992). Through the use of standard business solutions, each course now generates up to $200K a year (Holzinger, 1992).

Another example is C-12 maintenance operations at NAS Oceana. In this case, the contractor maintained the aircraft with only two employees who were qualified in all aircraft systems. When the aircraft was scheduled to fly, one maintainer came in and performed the pre-flight preparations. After the C-12 was airborne, he departed. When the aircraft returned, one maintainer was waiting to perform the post flight maintenance and prepare for the next event. Rarely were both maintainers required to work over forty hours per week because, unlike the military, there were no additional job requirements to perform such as rate training, standing watch, and inspections. This flexibility in personnel scheduling allowed for significant savings in labor costs (McLean, 1997).

In another example, Fairfax County contracted with ATE Management & Services Co. Inc. in 1990 to provide bus service to three stations on the Metrorail rapid-transit system serving Washington D.C. (Holzinger, 1992). Buses from the Washington Area Transit Authority previously served the county. Under the new contract, the county provides ATE Management with buses, a maintenance facility, fuel, insurance, and planning and marketing support. ATE operates and maintains the fleet. Buses owned and operated by the regional transit authority cost about $4.85 per mile, while the buses owned by Fairfax County and operated by ATE cost about $2.60 per mile (Holzinger, 1992).

6. Outsourcing Summary

Understanding the history of outsourcing as a management tool is important in assessing current activities within the DoD. This section of the literature review defined outsourcing, explored the history of outsourcing within the DoD, and gave a brief

summary of the private sector experience with outsourcing. It looked at some of the characteristics of successful and unsuccessful outsourcing programs and presented examples.

B. PARTNERING

Since the end of the Cold War, both government and industry have been facing unprecedented downsizing and reorganization efforts. Accordingly, both are undergoing dramatic change as the result of initiatives to increase efficiency and cut costs, particularly those associated with infrastructure. The Quadrennial Defense Review (QDR) emphasized the need to reengineer the DoD's infrastructure and business practices through a "Revolution in Business Affairs (RBA)" (Chang, Galig, et.al., 1999). Partnering offers government and industry an alternative to outsourcing, providing a flexible framework for organizations to work together to achieve their individual goals.

To understand the elements of successful versus unsuccessful partnering arrangements, a working definition of partnering is needed. While most definitions come from private sector publications designed for practitioners, little is written about public-public partnering in scholarly works.

The Department of the Army, in its "Partnering Initiative" briefing, defines partnering taking into account its role in government contracting. Partnering in this context is "a commitment between two organizations for the purpose of improving communications and avoiding disputes accomplished through an informal process" (Jones, 1997, p.1).

Industry leaders also have their own working definition of partnering. The Construction Industry Institute (CII) defines it as:

> A commitment between two or more organizations for the purpose of achieving specific business objectives by maximizing the effectiveness of each participant's resources. This requires changing traditional relationships to a shared culture without regard to organizational boundaries. This relationship is based on trust,

dedication to common goals, and an understanding of each other's individual expectations and values (CII, 1995, p. 2).

Regardless of the environment (pubic or private sector) in which partnering is used, most sources tend to agree on the essential elements that define partnering. In this study, partnering is defined in broad terms to facilitate discussion of its application to private enterprise, military organizations, and governmental agencies.

1. Definition of Partnering

> Partnering is the act of bringing organizations together through strategic and informed cooperation to achieve the different but complementary goals of each [organization]. (Root and Root Associates, 1999, p. 2)

This definition is common in much of the literature in private industry. Partnering often occurs when one or more individuals or groups have identified a problem or need that they cannot address alone because they lack adequate funding, skills, or jurisdiction over resources. By pooling their resources or skills with others, however, they may be able to effectively tackle the problem (University of Arizona, 1997, p. 1).

To understand how partnering applies to military and governmental organizations such as NSAMB and the City of Monterey respectively, the subject of partnering is explored in more depth. To evaluate the potential for successful partnering arrangements between these two organizations, it is important to understand the origins of partnering, elements of successful partnering relationships, the characteristics of failed partnering attempts, and to review several case studies in successful partnering.

2. Background

a) Partnering in the Department of Defense

Although partnering arrangements may involve organizations within the public sector only, the private sector only, or a combination of public and private entities,

the concept originated in DoD as a means of linking the public and private sectors (Jones, 1997).

The concept of partnering between government and private industry is rooted in 1990s acquisition reforms to decrease DoD reliance on technical military specifications (MILSPECs) in favor of performance based requirements (Jones, 1997). Partnering originated as an outgrowth of acquisition reform initiatives designed to support warfighting capabilities quicker and at less expense. Partnering is an extension of the Integrated Product Team (IPT) concept described in Department of Defense Regulations 5000.2R dated March 15, 1996 (Jones, 1997). However, partnering remains an informal process, which is not directly governed or regulated by DoD policy.

Historically, most DoD partnering arrangements involved U.S. military organizations and private industry. However, with the need to cut infrastructure costs in light of recent downsizing in the military, federal agencies are showing a willingness to partner with other public organizations including state and local governments. One example of this is the partnership between the Defense Foreign Language Institute Language Center and Presidio of Monterey (DLIFLC and POM) and the City of Monterey, California. DLIFLC and POM, two U.S. Army organizations that are co-located on an installation in Monterey, California have partnered with local government for fire protection support since the City offers efficient fire protection services at competitive prices (U.S. Army, 1998c).

Although such initiatives give public participants the opportunities to coordinate and participate in efforts which can potentially yield substantial cost savings, current federal laws and regulations often make these partnerships impractical and, in some cases, illegal. For example, DLIFLC and POM contracted firefighting, security guard, police, public works, and other municipal services from government agencies within Monterey County. Doing so required special legislation (PL 103-337, Sec. 816) that would enable these opportunities on a demonstration project basis, thus waiving Section 2465 Title 10, U.S. Code for this project (U.S. Army, 1998c). Although the partnering arrangement has been considered highly successful by all parties involved, the

legal basis for this partnering arrangement remains temporary and is subject to Office of the Secretary of Defense (OSD) and congressional review. The project, originally enacted in October 1994 as a two-year pilot study, has been extended through FY2000 to allow time to measure project performance (U. S. Army, 1998c).

b) Partnering between the Public and Private Sectors

Public-private partnerships have gained preeminence in recent years as government agencies have attempted to privatize many of their functions. These initiatives have made government agencies more willing to consider arrangements, which have been more collaborative in nature than the more traditional command and control relationships. In addition, with trends in government downsizing and infrastructure reduction, the administration of many programs has devolved from federal to state levels, forcing many managers to administer programs at lower levels of government, often with less manpower and financial resources. This has also forced a movement toward collaboration and partnering between the public and private sector at all levels of government.

Recent government initiatives have attempted to lay the groundwork for unprecedented collaboration between the public and private sectors. The President's Council on Sustainable Development (PCSD), dealing specifically with environmental issues, is one such initiative, created in 1993 by President Clinton, which "brings together diverse interests to identify and develop policies and strategies and to demonstrate implementation of sustainable development in real-world settings" (Townley Global Management Center, 1998, p. 4).

Given the current climate of limited resources and government initiatives at the highest levels partnering between government and the private sectors will continue to be a major part of any government operation.

3. Elements of Successful Partnering Relationships

In this study, a successful partnering relationship is defined as an arrangement between two or more organizations, which is cost-effective and mutually beneficial to the parties involved. Successful partnering is achieved by pooling resources and eliminating efforts. Several public and private sector partnering studies (Root and Root Associates, 1999; State Supply Commission, 1998; University of Arizona, 1993; U.S. Army Corps of Engineers, 1991, 1996) list the following elements as essential to successful partnering arrangements:

1. Involvement and participation of key stakeholders
2. Commitment of top-level management
3. Trust and open communication
4. Mutually beneficial goals and objectives
5. Teamwork
6. Understanding and respect
7. Synergy
8. A common vision
9. Win-win philosophy
10. Collaborative decision-making

Many of these elements overlap, therefore, this study focuses on five elements which are most relevant and are considered to have the least overlap: (1) involvement and participation of key stakeholders, (2) commitment of top-level management, (3) mutually beneficial goals and objectives, (4) a common vision, and (5) collaborative decision-making.

a) Involvement and Participation of Key Stakeholders

A stakeholder is defined as any person, group, or organization that can place a claim on an organization's attention, resources, or output or is affected by that

output (Bryson, 1995). The key to success in public and private sector organizations is the satisfaction of key stakeholders (Freeman, 1984; Bryson, 1995). This requires organizations to first identify both internal and external stakeholders to the partnering arrangement and understand their influences, levels of involvement, power bases, and expectations. Roberts and King (1989) point out that stakeholder analysis involving public sector organizations can help organizations set direction and formulate strategies in environments where success is defined without the benefit of bottom-line figures such as profits or market share. In public sector partnering, both involvement and participation of key stakeholders are particularly important in formulating and executing policy choices and maintaining support for organizational goals in light of competing demands and the politics involved in partnership management (Roberts and King, 1989).

In partnering arrangements, careful consideration must be given to the expectations of both internal and external stakeholders, which have interests or stakes in the partnering arrangement. Satisfaction of stakeholder expectations is often difficult as many do not generally share the same definition of an organization's problems, and hence, do not in general share the same solutions. This is particularly true in partnering arrangements between public and private sector organizations where cultural working environments can greatly differ. Consequently, approaches to organizational problem-solving, which presuppose consensus or agreement among parties, can often break down or do not work (Mitroff, 1983).

b) Commitment of Top-level Management

Success in partnering arrangements depends on the personal commitment of organizational management teams. Senior managers from both the public and private sectors must be actively involved in the process while continually demonstrating their support for the partnering arrangement. For decision makers at all levels within their respective organizations to embrace the combined efforts and initiatives involved in collaborative partnering efforts, upper management must openly demonstrate a top-down commitment to the goals and objectives of the partnership. Partnering needs

"champions" at all levels within the organization, but it is particularly important to have them at the top management level. This will ensure that other champions of partnering throughout the organization are willing to take risks, use professional judgment, and make management decisions in a new cooperative environment (U.S. Army Corps of Engineers, 1991, p. 3).

c) Mutually Beneficial Goals and Objectives

In partnerships, mutually beneficial goals and objectives may be achieved through collaborative efforts and the synergistic effects of group interaction. Successful partnering initiatives demands the appropriate allocation of resources, including ideas, labor, and material (Lipman-Blumen, 1996). Partners must identify, understand, and support the other organizations' goals and objectives. They must work together to translate their individual needs into the common goals they jointly strive to achieve (State Supply Commission, 1998).

d) A Common Vision

Vision describes how the organization should look when it is working extremely well in relation to its environment and its key stakeholders (Bryson, 1995, p. 155). While many organizations develop mission statements that outline organizational purpose, formulating a common vision is often more difficult, particularly because most organizations are coalitional (Pfeffer and Salancik, 1978; Pfeffer, 1992), and therefore, vision must be a negotiated arrangement between rival coalitions (Bryson, 1995). In the case of partnering arrangements, the parties involved usually form such arrangements to share mutual benefits of collaboration; they may not, necessarily, be rival entities, but may have competing interests, which must be resolved to avoid conflicts and disputes.

e) Collaborative Decision-making

Collaboration is a cooperative venture, which is nonhierarchical in nature and is based on shared power and authority (Kraus, 1984.) As such, it tends to focus

more on functions rather than the roles of individuals in the organizations. In partnering arrangements, collaborative decision-making often brings together parties with different methods, cultures, symbols; consequently, good deal making depends on the ability to step into the shoes and appreciate the goals of the other parties (Kanter, 1989). Mutually beneficial decisions are usually made by consensus, ensuring that the needs and concerns of all parties have been addressed.

4. Elements of Unsuccessful Partnering Arrangements

In an analysis of partnering between private and public sectors, the University of Arizona (1993) suggests several elements of unsuccessful partnering arrangements, including:

1. Lack of clear purpose
2. Unrealistic goals or deadlines
3. Key interests or decision makers not included or refuse to participate
4. Not all participants stand to benefit from the partnership
5. Financial and time commitments outweigh potential benefits
6. Basic value conflicts exist with no room for negotiation
7. Constitutional issues or legal precedents are involved

This study focuses on three of these elements, which are relevant to partnering arrangements described in later chapters:

a) Lack of clear purpose

When a partnering organization lacks clear purpose in formulating goals and strategies, it is likely to fail or suffer setbacks in its endeavors. Research on goal setting indicates that one of the most important determinants of goal achievement is the clarity of the goals themselves. The more specific the goal, the more likely it is to be achieved (Locke, Shaw, Saari, and Latham, 1981; Boal and Bryson, 1987).

b) Key interests or decision makers not included or refuse to participate

Every key decision-maker in a large public organization is, in effect, a political decision-maker (Mintzberg, 1983; Pfeffer, 1992; Fesler and Kettl, 1994; Herman, 1994; Peters, 1995). Bryson (1995) points out that public organizations are politically rational, often relying on a consensus of goals, policies, programs, and actions to achieve organizational aims. Thus, when key personnel are not included, for whatever reasons, in the partnering process (formulation and implementation), decisions made by the collective body could fail to take into account the interests and expectations of important stakeholders. Omission of key personnel may also reinforce organizational resistance to change (Beer, Eisenstat, Spector, 1990).

c) Financial and time commitments outweigh potential benefits

Implementing the organizational changes required for successful partnering arrangements means more time spent on coordination, meetings, and document review. Beer, Eisenstat, and Spector (1990) state that high levels of commitment are essential for the effort, initiative, and cooperation that coordinated action demands. They also maintain that the development of new competencies or skills, such as the administrative procedures governing partnering arrangements, are necessary if people are to work together as a team. In bureaucratic organizations such as the military, change is often slow and incremental at best (Bryson, 1995). Therefore, the time and financial commitments to train people and fundamentally change how the organization does business may outweigh the potential benefits of implementing the change.

5. Examples of Successful Partnering Arrangements

As Kanter (1989) suggests, today's economic realities make it essential for organizations to "imagine possibilities outside of conventional categories, to envision actions that cross traditional boundaries, to anticipate repercussions and take advantage of interdependencies, and to make new connections or invent new combinations." In

reviewing successful partnering arrangements, one may note that partnering arrangements that are considered "successful" in industry literature have many of the attributes Kanter describes.

As mentioned previously, one of the unique public partnerships appears to be successful is the DLIFLC and POM arrangement with the City of Monterey, California. This partnership is a departure from the traditional military command and control structure, which was heavily laden with legislation that kept government and industry from collaborating. Although the arrangement is only temporarily approved under federal demonstration legislation to test the efficacy of partnering between public agencies, the success of this pilot study could open the door for future public partnering initiatives.

California's central coast is also the home of another successful partnering initiative. In October 1997, the Cities of Seaside and Monterey, California signed a Joint Powers Agreement creating the Presidio Public Works Agency, a Joint Power Agency (JPA) that would deliver municipal public works services to the Presidio of Monterey (POM) and its annex at the former Fort Ord. Services under this partnership are priced at the JPA's cost to deliver services, yielding over $1.0M in Army base operating savings (U. S. Army, 1998c).

The U.S. Army, specifically the U.S. Army Corps of Engineers (USACE) has documented some of the most successful public partnering arrangements in the public sector. The USACE has worked closely with the EPA on wetlands regulations and permitting, and also works closely with the U.S. Air Force in military construction projects, such as the renovation of military air bases. USACE recently developed a partnering plan with the City of Philadelphia, dredging two million cubic yards of fill material from the Delaware River shipping channel for a new runway embankment at the Philadelphia International Airport (U.S. Army, 1998b). This partnership was beneficial to both organizations, avoiding adverse environmental impacts and saving $7.0M.

6. Partnering Summary

In an era of military downsizing and declining budgets, the military establishment and other public entities must seek innovative ways to optimize infrastructure utilization. Partnering among public and private organizations offers an innovative approach, which mutually benefits the parties involved through potential cost savings and pooling of resources. Although enactment of partnering arrangements between public and private industry is a relatively new development in federal policy, the success of several pilot studies are helping pave the way for adoption of more flexible regulations and legislation governing public business practices.

III. FLEET MANAGEMENT COST PRACTICES AND ORGANIZATIONAL CLIMATE AT NAVAL SUPPORT ACTIVITY MONTEREY BAY AND THE CITY OF MONTEREY

This chapter describes the vehicle maintenance programs at Naval Support Activity, Monterey Bay (NSAMB) and the City of Monterey. It explains the general business practices, describes the primary internal stakeholders, and considers the organizational climate of each entity. The chapter provides a basic familiarization of both organizations in terms of vehicle cost management practices, and other areas relevant to the topic of outsourcing and partnering.

A. NSAMB VEHICLE MAINTENANCE PROGRAM

The description of vehicle cost maintenance practices at NSAMB includes an explanation of the Transportation Division mission, and the Navy-wide transportation program, particularly how Navy-owned equipment is planned, procured, and funded. For example, the Navy transportation program is designed and administered from several levels above the actual level that executes the plan.

The NSAMB Public Works Transportation Division's mission is to support NSAMB departments and tenant commands in managing, administering, acquiring, operating, and maintaining non-tactical Civil Engineering Support Equipment (CESE) and transportation equipment (NAVFAC P-300, no date). This mission encompasses equipment procurement, rentals, long and short-term assignments, and maintenance services for several Department of Defense (DoD) customers. Support equipment includes fire fighting equipment, mobile weight handling equipment (WHE), construction equipment, and various passenger transportation vehicles. Examples of typical services include:

- Class "A" (Continuing) Vehicle Assignments
- Class "B" (Recurring) Vehicle Assignments

- Class "C" (Pool-5 days or less) Vehicle Assignments
- Vehicle leasing
- Equipment Preventative Maintenance and Repair
- WHE Test and Certification

According to the NSAMB vehicle inventory (May, 1999), the division is responsible for 79 class "A" through "N" vehicles (sedans through 11-ton trucks), 70 pieces of "O" through "Z" vehicles (heavy equipment), 26 pieces of non-CESE equipment (trailers and WHE), 32 pieces of leased "A" through "N" vehicles, and 42 pieces of "O" equipment. (For a complete listing of vehicle alpha codes and their descriptions see Appendix A.) This fleet of 249 vehicles and equipment supports the NSAMB PWD and its customers.

Management of Civil Engineering Support Equipment (NAVFAC P-300) is the governing instruction for efficiently managing the transportation program. General and detailed procedures for administering, operating, and maintaining transportation equipment are covered in this manual. Procedures are also included for maintenance planning, scheduling, maintenance control, material support, and vehicle and equipment modification.

1. Program Responsibilities

Naval Facilities Engineering Command (COMNAVFACENGCOM) has the technical responsibility for Navy-owned CESE transportation equipment described in the procurement budgeting area by authority of the Secretary of the Navy (SECNAV) and the Chief of Naval Operations (CNO). To help execute the policies and procedures set forth in the *NAVFAC P-300,* Transportation Equipment Management Centers (TEMCs) were established within designated COMNAVFACENGCOM Engineering Field Divisions. (Appendix B organizational chart.)

The Pacific Division (PACDIV) TEMC located in Pearl Harbor, Hawaii supports NSAMB. The TEMCs promulgate the program and assign inventory objectives, plan, program, and budget for replacing and disposing of transportation equipment, and provide technical advice and assistance for operating and maintaining transportation department functions.

Transportation inventory objectives (IOs) are defined as the quantity of equipment authorized to be held in inventory and are determined and administered by the cognizant TEMC. Transportation equipment is assigned only to those shore activities that have approved IOs. IOs provide the Navy with a means to justify new CESE requirements and replacements. They represent the most efficient mix of equipment code quantities needed to perform an activity's mission as agreed by the TEMC and the activity.

In the Navy-wide transportation program, transportation equipment IOs are reviewed on a continuing basis. As missions or functions change, the activity IO is revised by the respective TEMC. IOs are reviewed and validated by the TEMC during a Transportation Management Assist Visit (TMAV) and/or when requested by the activity. A TMAV is an on-site activity zero-based analysis of the administration, operation, and maintenance of transportation equipment by TEMC representatives. Each TMAV begins with a zero-based IO review, meaning all prior approved IOs are not considered in developing new IOs. Establishing a new IO requires meeting with activity that has an assigned CESE or a future projected requirement. A discussion with each customer addresses vehicle/equipment requirements, justification, mission requirements, and/or current projected manpower availability. As a result of these discussions, vehicle quantities and types are established to meet current and future CESE requirements. NSAMB's vehicle fleet was last evaluated by a TMAV in November 1998.

2. NSAMB Business Practices

a) Procurement

Each year, Congress (through appropriation acts) authorizes the exact quantity of passenger carrying vehicles to be acquired by the Armed Services and establishes a maximum unit cost for these vehicles. As a result, all requests for new CESE equipment must be approved by COMNAVFACENGCOM.

Newly approved IOs or replacing existing CESE must be planned and programmed into the DoD biennial budget submission under Other Procurement, Navy CESE Budget Activity 5 during the Program Objective Memorandum (POM) process. COMNAVFACENGCOM is responsible for investment budgeting for the Navy-wide procurement of CESE.

To support the budget submission, requirements are on a biennial basis at each command. During this review, a projected funding level is developed for each activity. In turn, the activity develops a prioritized requirement listing that can be funded not to exceed the projected funding level, and forwards the review package with amplifying information and justification to its respective TEMC. COMNAVFACENGCOM coordinates with the TEMCs to determine final requirements to include in the budget request.

Equipment can also be acquired via transfers from one activity to another. As with new procurements, the activity must have a designated IO and requirement for the equipment. Transfer approval is controlled at the TEMC level.

b) Disposal of Equipment

The disposition process and documentation for excess equipment removed from service varies according to the equipment's condition. The first step is determining at the local command level whether the equipment is usable or unusable. If the equipment is usable, the respective TEMC will determine if there are other Navy or DoD activities with requirements for the equipment and provide the transfer instructions. If

there are no other Navy or DoD requirements for usable equipment, the TEMC will instruct the activity to effect a disposal action with the appropriate Defense Reutilization and Marketing Organization (DRMO). If the equipment is no longer usable, the holding command will directly initiate disposal with DRMO.

3. NSAMB Transportation Division Organization

This section describes NSAMB Transportation Division's internal personnel and structural organization. Vehicle dispatch is centrally located, however, upper and middle managers that supervise the division are not co-located with dispatch. Middle management is located in another building on the transportation compound while upper management is located in the base administrative building. Upper and middle managers are kept up to date on the daily activities of the Transportation Division (i.e. informal conversations), however, their location does not allow for close interaction with other transportation employees.

A Shops Superintendent manages the Transportation Division. This position is "triple hatted" as the Utilities, Maintenance, and Transportation Division Officer due to downsizing and consolidation within the Public Works Department over the past few years. The Shops Superintendent is responsible for approximately 150 employees; down from 267 personnel a few years ago.

As Transportation Director, the Shops Superintendent is responsible for planning and executing all operational, administrative, and personnel issues within NSAMB Transportation Division. The position reports directly to the Public Works Officer (PWO) via the Assistant Public Works Officer (APWO). (Appendix C organizational chart.)

A Transportation Specialist manages day-to-day operations, and supervises one Transportation Assistant and three mechanics. The Transportation Specialist makes all vehicle assignments to users, monitors vehicle leases with the Government Services Administration (GSA) and reports to the Shops Superintendent.

The Transportation Assistant's primary responsibilities include tracking the miles on all vehicles owned or leased by NSAMB and tenant commands using monthly trip tickets (DD Form 1970), and scheduling preventative maintenance. Monthly trip tickets document information concerning motor vehicle use such as miles driven, destination, and operator's name. The Transportation Assistant is the point of contact for checking vehicles in and out of the central motor pool and maintaining the Dispatcher's Log (NAVFAC Form 9-11240/2) per *NAVFAC P-300.*

There are three full-time equivalent mechanics on staff who report to the Shops Superintendent via the Transportation Specialist. One mechanic specializes in repairing and maintaining heavy equipment, another specializes in repairing and maintaining weight-handling equipment, and one is an automotive mechanic. They are responsible for maintaining all the vehicles and heavy equipment delineated in the beginning of this chapter except for GSA leased vehicles. Due to downsizing, there is overlap in their assigned duties.

4. NSAMB Heavy Equipment Operators

Although not assigned to the Transportation Division, it is important to note that there are two equipment operators assigned to the Maintenance Division. They are under Shops Supervisor's control. Their primary responsibilities are heavy equipment operator maintenance and heavy equipment operation as assigned by the Maintenance Supervisor. When heavy equipment tasking is completed, the equipment operators are assigned other tasks within the Maintenance Division. They are both qualified to operate all heavy equipment in NSAMB's inventory.

5. Financial Management

The NSAMB unit identification code (UIC) is not a funded UIC. The only funded UIC is the Naval Postgraduate School (NPS) UIC. Because NSAMB is not a funded UIC, it cannot receive funds directly from its major claimant and is not entitled to an

official Navy comptroller billet. Instead, a billet entitled Resource Sponsor was developed for NSAMB and functions similar to a Navy comptroller billet.

Each fiscal year, the NPS UIC receives the total obligation authority (TOA) for NSAMB and NPS from the major claimant (CNO) and funds are distributed between the two commands on a predetermined basis, as described in their intraservice agreement (ISSA). The Resource Sponsor notifies the PWD Fiscal Supervisor via an internal memo regarding the amount of TOA available for the Public Works Department (PWD). The memo further specifies the total amount allocated to the Transportation Division per CNO directive.

The PWD budget is managed and tracked by the PWD Fiscal Supervisor and an assistant. The Fiscal Supervisor advises the Public Works Officer on the department's budget execution issues. Although this position is located in the PW spaces in Hermann Hall, it reports to N2, the Resource Sponsor at NPS.

The PWD Fiscal Supervisor directly supervises the assistant who tracks all financial transactions related to the PWD budget. The assistant uses internally developed Microsoft Excel spreadsheets to track individual financial transactions for internal and external reporting.

Once a month, the Fiscal Supervisor reconciles the balances from these spreadsheets with the official balances provided from the Standard Accounting System (STARS) and Funds Administration Standardized Document (FASTDATA) system maintained by the NPS Resource Sponsor. In addition, a report is created for the PACDIV TEMC and the PWD chain of command using the information related to the transportation division from these spreadsheets.

Some of the typical reports created from these databases include: Transportation Cost Annual Report (TCAR) Budget Report, an external reporting document which is sent annually to PACDIV TEMC detailing total expenditures related to the Transportation Division by vehicle class codes; NSAMB PW Fiscal Year Spending Plan, which is used internally by the chain of command and the Resource Sponsor for planning purposes; and

the NSAMB PWD Labor Report, which periodically advises the PWO of labor execution rates.

The NSAMB PWD Transportation Division operating budget for fiscal year 1998 was $228K. Historical-based budgeting is used when developing the new fiscal year budget. This means that the budget authority in a given year is used as a basis for the up-coming fiscal year budget. This basis is then multiplied by a predetermined inflation factor and the result is used as the new fiscal year budget request. Each year the CNO determines this inflation factor and directs Naval activities via official message to use this factor in performing their budget estimates for the new fiscal year budget.

6. Organizational Climate of NSAMB PW Transportation Division

This study defines organizational climate basically in terms of how employees think and feel about certain aspects of their work environment, such as trust in their leaders and departmental morale (Schneider, 1990). Organizational climate is relevant because employees' perceptions about their work environment can have a direct impact on productivity and an organizations' ability to adapt to changes in its internal and external environment. Climate is related to an organization's ability to attain its goals (Schneider, 1990). In other words, climate matters, particularly for an organization considering outsourcing or partnering to improve efficiency.

Semi-structured interviews were conducted with two department managers and one employee from a department composed of six personnel to discern NSAMB's organizational climate. Interviewees were asked, "What is the current relationship (interaction) between division leadership and employees?" Two out of three stated they felt the interaction between management and employees was good. One interviewee stated that the relationship between the two groups was poor, possibly due to the two recent reduction-in-force (RIF) cutbacks and the announcement of an impending Commercial Activities Study (A-76) scheduled for the entire Public Works Department.

Interviewees were also asked, "What is the level of trust in the organization? (high, medium, or low)" All interviewees stated that the current level of trust in the organization was low. Two out of three said they did not feel as though the division leadership valued employees as a command asset. One example, cited by two out of three interviewees, was that NSAMB PWD All Hands meetings are frequently cancelled at the last minute or are not attended by senior management personnel.

Interviewees were also asked, "What is the level of employee morale?" All interviewees responded that the division's morale was low. One interviewee stated that the morale level was "reflective of the low level of trust in the leadership of the organization."

Interviewees were asked, "What is the level of resistance to change?" Two out of three stated the level of resistance to change was high. One interviewee stated that the level of resistance to change "depended on the person." One interviewee stated that resistance was high because changes occurring within the organization are rarely explained. Another stated that the high level of resistance was based on the recent RIFs and the A-76 announcement.

It is imprecise to describe an organization's climate based on three interviews. However, the interviews provide some indication of the organizational climate that may be relevant to outsourcing and partnering. In summary, the interviews indicated that trust and morale within the organization is generally low and resistance to change high. This organization has been experiencing several major changes that could affect trust and morale. This information will be further discussed in Chapter VI.

B. CITY OF MONTEREY VEHICLE MAINTENANCE PROGRAM

Based on an interview with the City of Monterey VMD Financial Analyst, the mission of the City of Monterey Public Works Vehicle Maintenance Division (VMD) is to manage fleet vehicles and equipment; to ensure operational availability and safety at minimal cost; and to provide maintenance services to outside agencies by contract. This mission includes vehicle and equipment procurement, rentals, replacement, and

maintenance services for Monterey and other municipalities including Carmel, Del Rey Oaks, Marina, Monterey Airport District, Sand City, and Seaside. Additionally, VMD performs these services with other public agencies on a reimbursable basis (*City of Monterey, California 1998-99 Budget*, 1999.)

Unlike the Navy and NSAMB, which use the government vehicle classification system (A-Z), the City of Monterey uses the American Public Works Association (APWA) industry-standard vehicle classification terminology. Typical vehicle and equipment classes include: passenger cars (sedans), light trucks/vans, heavy trucks (>20K pounds gross weight), heavy equipment (backhoes, sweepers), and other (rollers, trailers, scooters, motorcycles).

As of May 1999, VMD is responsible for 176 vehicles: 46 sedans, 60 light trucks, 25 heavy trucks, 15 pieces of heavy equipment, and 62 other pieces (rollers, trailers, and scooters). It also maintains 30 automobiles from outside agencies, including Del Rey Oaks, Sand City, and Seaside.

The Public Works Department (PWD) uses the APWA *Public Works Practices Manual* for recommended fleet management practices. This manual describes what public works agencies should be doing rather than prescribing specific functions. Periodically, the PWD management analyst reviews the manual's recommended practices, and uses them to develop and modify written fleet management policies, practices, and procedures. The City, in particular, is interested in adhering to APWA recommended practices. It is currently striving for APWA accreditation.

1. City of Monterey Vehicle Maintenance Division Organization

This section describes the City of Monterey Vehicle Maintenance Division personnel and physical organization. Appendix D provides organizational charts for the City and the PWD.

The Public Works Director provides and maintains services as established by the Monterey City Council. In terms of fleet management, the Director is responsible for three levels of vehicle management: 1) Office of the Public Works Director (includes one

Management Analyst and a Public Works Support Services Manager, 2) Maintenance Department, and 3) Vehicle Management Division (includes one mechanical supervisor and four line maintenance personnel). The PWD reports directly to the City Manager on fleet issues and to the Mayor and City Council on fleet cost management, logistics and budgetary issues.

The Public Works Management Analyst position was established in 1997 after the City acknowledged that it needed to address several external factors. A 1991 study conducted by Management Services Institute, an Anaheim, California corporation, revealed that the City was substantially underfunded for capital equipment replacement because federal general revenue sharing, received in previous years, was eliminated, and most federal grants were reduced (Management Services Institute, February, 1991). This, coupled with the City's recent desire for APWA Public Works Accreditation, led the City to hire a management analyst who reports directly to the Public Works Director on management issues. Although not technically in charge of subordinates, the analyst is considered a Division Chief, on par with the Chiefs of the other divisions: Engineering, Project Development Construction Management, Maintenance, Parks, and Transportation Engineering. Although the Analyst has little formal power to direct VMD personnel, the management analyst acts informally as a fleet management cost consultant, often steering the mechanical supervisor's efforts to improve shop performance.

In the spring of 1999, the City created the Public Works Support Services Manager position to develop and implement PWD goals, objectives, and policies, to conduct strategic planning and to set long-term PWD goals and vision. Specifically, this job directs and organizes all vehicle and equipment repair and maintenance. Although this position does not directly supervise employees, its authority is considered equal to a Division Chief.

The VMD garage and motor pool yard are located at the Ryan Ranch facility in Monterey. The facility is approximately four miles from the Monterey Public Works Department downtown administrative offices. Five employees, including one mechanical supervisor, three full-time mechanics, and one mechanic's assistant, perform daily vehicle

and equipment maintenance, oversee the parts inventory storage facility, and maintain the city motor pool.

All mechanics, with the exception of the mechanic's assistant, are trained as all-around technicians, capable of performing routine maintenance on every piece of equipment, from street sweepers to lawn mowers. Maintenance of City vehicles and equipment under warranty is handled per specific manufacturer contract agreements. That is, warranty repairs and/or services are sometimes performed by the manufacturer (e.g., auto dealerships). However, the majority of city vehicle maintenance is performed in-house.

2. City of Monterey Business Practices

a) Policy and Organization

Much of the City's fleet management business practices are controlled through the Vehicle and Equipment Management Policy. Whereas a strict hierarchy of federal regulations binds NSAMB's fleet management practices, the City manages its fleet through a City Council-approved Vehicle Management Committee (City of Monterey, CA, *Vehicle and Equipment Management Policy*, 1996). The Assistant City Manager chairs the eight-member committee. Its members include the Public Works Director, Public Facilities Director, Finance Director, Fire Chief, and the Police Chief. Other attendees include the Maintenance Superintendent (staff support) and the VMD Mechanical Supervisor (committee recorder).

The committee's primary responsibilities and duties include:

(1) Reviewing vehicle acquisitions and replacements; status of fund management and reserves; equipment utilization rates.

(2) Establishing vehicle rental rates for computing internal charges.

(3) Making recommendations and providing guidance on acquisitions and replacement policy and operations.

b) Procurement

Vehicle procurement decisions are based on the Vehicle Management Committee's recommendations. The committee has written guidance concerning vehicle and equipment life expectancy (years of service and/or number of miles driven if applicable). Vehicle usage, which can greatly impact vehicle life-cycle costs, is also considered in deciding whether to replace or extend the life of a particular asset.

Normally, all specifications for vehicle and equipment purchases are developed and coordinated between the requesting department and the Mechanical Supervisor, prior to committee presentation. This ensures that new acquisitions can be properly maintained and supported by City employees. The committee then reviews the various proposals. If approved, they are submitted with the annual budget requests to the Finance Department, which compiles the City's budget. The City Council then reviews and passes the annual budget, which is implemented in July.

c) Disposal of Vehicles and Equipment

Unlike the Department of Defense, the City does not have rigid rules governing vehicle and equipment disposal. When passenger vehicles reach the end of their useful lives, many are sold at auction with the proceeds going to the City's General Fund. On occasion, vehicles are donated to non-profit organizations to promote community support. In one case, a passenger van was donated to assist elderly and disabled citizens who would otherwise have had limited opportunity to grocery shop and run errands. Heavy equipment is sometimes sold to neighboring municipalities while minor equipment is usually publicly auctioned, scrapped, or removed from service.

3. Street Sweepers and Vactor Operators

Two street sweeper operators and two Vactor (storm drain maintenance vehicle) operators are assigned to the Streets Division of the Public Works Maintenance Division. (See Public Works Organizational Chart in Appendix D.) While the City employs heavy

equipment operators who are qualified to operate several types of vehicles (i.e., loaders, backhoes, dump trucks), sweeper and Vactor personnel are hired solely to perform their respective duties.

4. Financial Management

The City of Monterey VMD operating budget for fiscal year 1998-99 was $1.302M. These projected revenues and internal charges do not completely offset the total expected $1.5M expenditures. The $194K deficit reflects part of a $402K equipment outlay (fire truck replacement). Both the PW Director and the City Financial Manager recognize that such unforeseen outlays can greatly impact the City's overall budget and affect the public's perception of how efficiently its tax dollars are spent. To help identify cost saving measures, the Public Works Department has been developing benchmarking systems and has adopted an ORACLE management information system that uses activity-based costing software (Hansen 7).

5. Organizational Climate of the City of Monterey VMD

Semi-structured interviews were conducted with the City of Monterey Public Works Director, Management Analyst, Finance Director, Maintenance Division Supervisor, Mechanical Supervisor, and two shop mechanics. Each interviewee was asked several questions. The first question was, "What is the current relationship (interaction) between division leadership and employees?" Six out of seven respondents felt that working relationships between management and line personnel, were "excellent" or "very good." One respondent characterized the interactions as simply "good" with no other comments.

When asked about the level of trust in the organization, all interviewees agreed that Public Works, including the VMD, enjoys a high level of trust. Three of seven respondents felt that this reflected proactive management and open communications between managers and employees. Two respondents attributed high levels of trust to the Public Works Director's conscious efforts to routinely visit the shops and take an active

interest in the progress of individual employees. One respondent cited internal surveys and periodic shop meetings as "trust builders" and felt such feedback gave shop employees the opportunity to contribute to the decision-making process.

Interviewees were also asked to comment on the level of employee morale. Respondents said that morale ranged from "moderately high" to "very high." Two interviews attributed high morale directly to the Public Works Director. They cited his personnel recognition program. PW employees are publicly recognized in informal, often impromptu, PWD ceremonies. The PW Director created an award for outstanding service that only he can personally award: the City of Monterey Public Works belt buckle. Two respondents commented that the buckle award is not only a morale builder but also inspires competition among employees and a sense that employees are valued by the organization.

In summary, City of Monterey interview data suggest that both trust and morale within the organization are high. Although the public works organization must deal with cost cutting pressures and develop innovative ways to improve its efficiency, it does so in a relatively stable environment where high levels of trust and morale are a natural outgrowth. These climatic factors will be further discussed as they apply to outsourcing and partnering in Chapter VI.

C. SUMMARY

This chapter described the NSAMB and the City of Monterey vehicle maintenance programs, their business practices, and organizational climates. Each organization's vehicle maintenance program was described in terms of its structural organization and areas of responsibility. Business practices included vehicle procurement and disposal procedures and an overview of financial management for the vehicles pertaining to this study. The chapter concludes with a discussion of organizational climate and the results of semi-structured interviews with NSAMB and City of Monterey vehicle management and line personnel.

Of all the information presented in this chapter, the differences in organizational climates may have the largest impact as to whether these organizations should outsource or partner regarding the heavy equipment functions described in subsequent chapters. Whereas the City of Monterey appears to enjoy high levels of morale, trust and cooperation at all levels of its vehicle maintenance program, NSAMB does not appear as fortunate. Low morale and lack of communication cited in NSAMB employee interviews could make future outsourcing or partnering arrangements difficult in light of recent personnel downsizing and ongoing studies to consider future outsourcing initiatives.

IV. A COMPARATIVE QUANTITATIVE ANALYSIS OF STREET SWEEPING AND STORM DRAIN MAINTENANCE FUNCTIONS AT NSAMB AND THE CITY OF MONTEREY

A. DISCUSSION OF QUANTITATIVE ANALYSIS

This chapter explores outsourcing and partnering specific public works functions between military and civilian entities. It analyzes street sweeping and storm drain maintenance functions that NSAMB and the City of Monterey perform and looks for areas of overlap. The purpose is to reveal functional areas where outsourcing or partnering arrangements between the organizations could yield cost savings and increase efficiencies.

1. Identification of Functions for Cost Comparison

Outsourcing and partnering arrangements involving "A" through "N" vehicles (sedans through one-ton trucks) is a potential area for analysis. However, due to the CNO mandated conversion of these NSAMB assets to GSA lease, these past costs do not provide meaningful data for comparison. Therefore, these vehicles are beyond the scope of this thesis. Instead, this study focuses on potential outsourcing and partnering involving functions not affected by the GSA lease (e.g., outsourcing or partnering involving the heavy equipment assets included in classes "O" through "Z").

In comparing NSAMB and the City of Monterey vehicle inventory lists and in-house fleet functions, two functions emerged as candidates for outsourcing or partnering: street sweeping and storm drain maintenance. NSAMB and the City of Monterey currently maintain separate equipment and support services for these functions. NSAMB operates and maintains two street sweepers and one storm drain maintenance vehicle, and the City of Monterey operates and maintains three street sweepers and one storm drain maintenance vehicle.

2. Data Collection

NSAMB street sweeping and storm drain maintenance cost data were collected from *Naval Facilities Engineering Command Facilities Management Guide* (NAVFAC MO-321) Standing Job Orders (SJOs), and Job Phase Calculation Sheets (NAVFAC 11814/23 REV. 1-75) maintained by the Transportation and Maintenance Control Divisions. Data for La Mesa Housing functions, maintained in a separate database managed by the La Mesa Housing budget analyst, were collected for calendar years 1996 through 1999. Due to unusual weather patterns in recent years, 1998 La Mesa Housing cost data did not represent typical annual costs for street sweeping and storm drain maintenance. 1997 data were used in this analysis because they better represent average annual costs.

Physical data (NSAMB acreage for NPS, LA Mesa Housing, and FNMOC) were extracted from *NAVFAC P-164*. Street mileage data were derived from SJOs and NSAMB budget analyst interviews. Interviews were conducted with the NSAMB vehicle maintenance supervisor, sweeper operators, and storm drain vehicle (VAC-CON) operators to resolve inconsistencies among NSAMB cost data sources and help determine labor costs associated with the functions in this study.

City of Monterey labor and cost data were collected through printouts from Hansen 7 (an ORACLE activity-based costing system). Contract data were derived from City of Monterey internal memorandums, point papers, and interviews with the Public Works Management Analyst. Physical data (street miles and city acreage) were collected from interviews with the City Engineer.

3. Methodology and Data Analysis

a) OMB Circular A-76 Cost Comparison

The A-76 streamlined method is applicable when the number of civilian positions being studied in a federal organization is 65 full time equivalents (FTE) or less. This method requires the government (NSAMB in this case) to price its existing organization in accordance with the rules of larger A-76 studies (*OMB Circular A-76*,

March 1998). NSAMB street sweeper and storm drain maintenance functions involve only ten personnel, so they fall under the streamlined cost comparison method. Cost identification procedures are less stringent, allowing the organization to develop a range of estimated bids from prospective contractors (*Guide For Conducting A 10 and Under Study,* January 1998). While these guidelines are normally used to evaluate all functions of a particular government organization, the A-76 framework will be used in this analysis to compare the cost of street sweeping and storm drain maintenance functions.

(1) **Elements of Cost.** As outlined in *OMB Circular A-76* Chapter Two, "Developing the Cost of Government Performance" (*OMB Circular A-76 Revised Supplemental Handbook*, March 1996, pp. 19-24), the following items will be considered in constructing the government cost estimates:

a. **Personnel.** In A-76 analyses, personnel costs include all direct in-house labor and supervision necessary to complete functions specified in the Performance Work Statement (PWS). The PWS is a clear, precise, and complete statement of the required work. Elements of personnel cost related to this study include the following:

(i) *Annual Salary/Wages.* Pay rates based on the 1999 Federal Wage Schedule (FWS). (See Appendix E.) As required by A-76, wage and salary compensations are based on step four for FWS employees and hourly FWS rates are multiplied by 2087 (numbers of hours employees are paid annually.)

(ii) *Fringe Benefits* (Workmen's Compensation, Bonuses and Awards, Unemployment Programs). Fringe benefit factors are estimated according to the Federal Accounting Standards for Liability Exposure (OMB A-76, March 1998, p. 20). They account for the 24.8 percent fringe benefit factor repeated throughout this study. The specific factors included are outlined below:

(a) Retirement Cost Factors. This represents the Federal government's share of the cost for CSRS/ FERS pensions, retiree health benefits, Social Security, and TSP contributions.

(b) Federal Employee Insurance and Health Benefits. These benefits are based on 5.6 percent of actual cost plus an additional 1.45 percent for Medicare.

(c) Federal Insurance Contribution Act (FICA) Employer Cost Factor. Currently 7.65, this factor is applied to civilian employees not covered by either of the two civil service retirement systems. In the following study, the FICA cost factor will be ignored since all employees studied are covered by one of the systems.

b. **Equipment Related Costs.**

(i) *Depreciation.* Depreciation expense = (book value – residual value) / estimated useful life.[1] Residual value = percentage of acquisition cost specified in *OMB A-76.*

(ii) *Maintenance and Repair.* This includes the cost of replacement parts and labor hours to maintain equipment at serviceable levels.

(iii) *Insurance*

(a) Casualty Premium Equivalent Cost (C_{PE}). When outsourcing to private industry, if the government does not provide the contractor with insurance against property and/or other losses involving contract execution, it must compute in-house C_{PE} cost. A-76 stipulates 0.5 percent of depreciable value will be used to determine C_{PE}. See equation below. When partnering with other public organizations, this cost is usually ignored since public organizations often self indemnify.

$$C_{PE} = 0.005\left[X - \frac{nX}{Y}\right]$$

Where:
n = year of depreciation
X = depreciable value (residual value, if applicable, has been subtracted)
Y = total number of depreciable years

[1] Ingram and Baldwin, 1998, p. 368.

(b) Personnel Liability Costs. If C_{PE} calculations are necessary, then Personal Liability Costs (C_{PL}) are also computed. A-76 stipulates 0.7 percent of the total personnel costs, as computed using the equation below:

$$C_{PL} = 0.007 \text{ X Total Personnel Costs}$$

(iv) *Overhead.* This includes general management and administrative expenses. A-76 computations require this to be 12 percent of total personnel costs.

4. Establishing Baseline Costs

Conducting A-76 analyses requires establishing baseline costs for the equipment involved. To simplify calculations, all equipment costs are expressed in terms of 1998 dollars. In this study, CPI (transportation indices) contained in the *Economic Report of the President, 1998* will be used to adjust equipment costs to 1998 real dollars (See Appendix F). The following equation is used to compute equipment costs:

$$\text{Equipment Cost} = \frac{\text{Price in Base Year}}{\text{Index in Base Year}} \text{ X CPI in Current Year}$$

B. COST STUDY #1 (NSAMB AND CITY OF MONTEREY STREET SWEEPING)

1. NSAMB In-house Street Sweeping

NSAMB operates and maintains a 1996 TYMCO 600 as its primary street sweeper. A 1990 Sweeprite is the secondary sweeper. It is scheduled for transfer to the Defense Reutilization and Marketing Organization (DRMO) per *NAVFAC P-300* instructions for disposing of equipment that is no longer required. This second sweeper is included in the following analysis because NSAMB uses it for minor jobs and will perform all routine maintenance on the vehicle until it is transferred to DRMO.

a) Labor Computations

Information used to perform labor computations was obtained from interview data, Federal Wage Schedule (FWS), and *OMB Circular A-76*. The FWS provided hourly wages, and *OMB A-76* specified the 24.8 percent fringe benefit factor. The results are shown in Tables 4.1 and Table 4.2:

Table 4.1. NSAMB Sweeper Personnel Hourly Wages Including Fringe Benefits

Position	Hourly Wage	Fringe Benefit Factor (24.8%)	Total Hourly Wage
Operator (WG-10)	$17.93	$4.45	$22.38
Operator (WG-8)	16.43	4.07	20.50
Mechanic (WG-8)	16.43	4.07	20.50
Laborer (WG-3)	12.65	3.14	15.79
Sum of Cost:	63.44	15.73	79.17

Table 4.2. NSAMB Sweeper Personnel Annual Salaries Including Fringe Benefits

Position	Annual Salary	Fringe Benefit Factor (24.8%)	Total
Operator (WG-10)	$37,419.91	$9,280.14	$46,700.05
Operator (WG-8)	34,289.41	8,503.77	42,793.18
Mechanic (WG-8)	34,289.41	8,503.77	42,793.18
Laborer (WG-3)	26,400.55	6,547.34	32,947.89
Sum of Costs:	132,399.28	32,835.02	165,234.30

Standing job orders (SJOs) and interviews with the equipment supervisor and operators indicated that the percentages estimated in Table 4.3 should be used to determine street sweeping labor costs. The laborer (WG-3) safety observer position was added in 1998 as safety precaution when sweeping in the La Mesa Housing Area; it is not required by federal regulation.

Table 4.3. NSAMB Personnel Costs Based on Interview Data

Position	% of Time Spent Sweeping	Annual Accelerated Salary	12% Overhead	Total
Operator (WG-10)	25%	$11,675.01	$1,401.00	$13,076.01
Operator (WG-8)	25%	10,698.30	1,238.80	11,982.10
Mechanic (WG-8)	80%	34,234.54	4,108.15	38,342.69
Laborer (WG-3)	5%	1,647.39	197.69	1,845.08
Sum of Costs:		58,255.24	6,990.64	65,245.88

The data in Table 4.4 were obtained from Maintenance Control personnel interviews and SJOs for each of the three command areas: NPS, FNMOC, and La Mesa Housing. La Mesa Housing is broken down into five sections for sweeping services. Although each section differs in the number of street miles on the route, each area is allotted the same labor hours for task completion according to the La Mesa SJO for sweeping. According to NSAMB budget analysts, SJOs have not been updated to accurately estimate hours dedicated to La Mesa housing sweeps.

Table 4.4. Annual NSAMB Street Sweeper Miles

Location	Miles Serviced	Interval	Total Miles Serviced
FNMOC	8.0	Monthly	96.0
NPS	2.0	Weekly	104.0
	6.0	Monthly	72.0
	5.0	Semi-annually	10.0
La Mesa Housing Areas			
#1	3.6	Weekly	187.2
#2	4.2	Monthly	50.4
#3	3.2	Monthly	38.4
#4	3.0	Monthly	36.0
#5	3.2	Monthly	38.4
	38.2		632.4

Interviews revealed that NSAMB equipment operators do not strictly adhere to sweeping schedules outlined in the SJOs. In addition, if weeks have elapsed since the last sweep, it often requires two or three sweeps to clean the street to acceptable

standards. This translates to two to three times the normal allotted time for a single sweep. Lastly, the SJOs do not include the time required to perform operator maintenance (e.g., servicing, lubrication). Table 4.5 was developed as an alternative method to compute labor costs because Table 4.3 represents costs based largely on interview data.

Table 4.5. Labor Cost Computations Using NSAMB Street Miles

Position	Hourly Wage Including Fringe Benefit Factor	Labor Hrs Required	Annual Labor Cost	12% Overhead	Total
Operator (WG-8/10)	$21.44[2]	1328.8[3]	$28,489.47	$3,418.74	$31,908.21
Mechanic (WG-8)[4]	***	***	34,234.54	4,108.15	38,342.69
Laborer (WG-3)	15.79	175.2[5]	2,766.44	331.97	3,098.41
Sum of Costs:			65,490.45	7,858.86	73,349.31

[2] Only one operator at a time is required to run the sweeper. Since the two operators assigned have different wage grades, and data showing the breakdown in the percentage of labor hours performed by each operator was not available, the arithmetic average, $21.44, was used as the average hourly wage including fringe benefits.

[3] Labor hours required were computed using actual street miles contained in SJOs for FNMOC, La Mesa Housing, and NPS street sweeping. Hours were based on 632.4 annual street miles and a sweep rate of two miles per hour plus one hour of transit time per sweep at FNMOC and La Mesa Housing. Because sweeper equipment is housed onboard NPS, no transit time was allotted to sweeps on NPS grounds.

[4] Heavy Equipment Mechanic costs related to the sweeper function are not computed in SJOs. Mechanic costs were computed using interview data in Table 4.3.

[5] Labor hours extracted from the La Mesa street sweeping SJO (last updated 4-22-99) indicated only 21.1 annual safety observer (laborer) hours. However, to properly allocate the amount of time the safety observer spends performing the street sweeper function, one must consider that the laborer accompanies the operator for the entire duration of sweeping operations at La Mesa Housing. Although his services may not be required for all sections of the housing area, he is not otherwise gainfully employed in other laborer duties during this time.

b) Equipment Related Computations

Comparing cost data for the NSAMB PW Transportation Division and the City of Monterey revealed a difference in expenditures for new equipment. NSAMB spent considerably less than the City of Monterey to acquire its street sweepers and storm drain maintenance vehicle. There are at least two reasons for this difference. First, the NSAMB equipment is purchased directly from the manufacturer as part of a large GSA contract with no optional equipment or accessories. Selling in large quantities to GSA allows the manufacturer to offer special pricing discounts. Second, the equipment NSAMB purchased in this comparison is smaller than the City of Monterey's equipment.

(1) Computing Real Costs of NSAMB Sweepers

Street Sweeper #1

Acquired: 1996
Cost: $67,156
Service Life: 11 years
Depreciation schedule: 11 years, straight line[6]

Cost of Sweeper #1 in 1998 dollars:

C_{NS1} = ($67,156/158.4) X 169.6
C_{NS1} = $71,904.40

Disposal Value (DV): 6.63% of acquisition cost:
DV_{NS1} = $71,904.40 X 0.0663 = $4,767.26

Street Sweeper #2 (reserve equipment scheduled for DRMO):

Acquired: 1994
Cost: $60,739
Service Life: 11 years

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[6] According to *NAVFAC P-300*, the life expectancy for a street sweeper is seven years. (See NAVFAC P-300, no date, Appendix F-10.) However, *OMB Circular A-76* stipulates calculating useful life according to its tables. For analysis, the Motor Vehicles, Maintenance and Repair Specialized Equipment category (FSC No. 4910) was used to determine expected useful life and equipment disposal value. (See *OMB Circular A-76 Revised Supplemental Handbook*, March 1998, p. 46.)

Depreciation schedule: 11 years, straight line

Cost of Sweeper #2 in 1998 dollars:
C_{NS2} = ($60,739/150.2) X 169.6
C_{NS2} = $68,584.12

Disposal Value: 6.63% of acquisition cost:
DV_{NS2} = $68,584.12 X 0.0663 = $4,547.13

Thus, the total real cost (C_{NT}) of NSAMB street sweeper equipment in constant 1998 dollars is:
$C_{NT} = C_{NS1} + C_{NS2}$
C_{NT} = $140,488.52

Depreciation Computations:

Sweeper #1: ($71,904.40 - $4,767.26)/11 = $6,103.34
Sweeper #2: ($68,584.12-$4,547.13)/11 = $5,821.54

c) NSAMB Street Sweeper Total Annual Costs

Labor, materials, and maintenance costs in Table 4.6 were obtained from NSAMB's Transportation Division. Actual equipment costs are detailed in vehicle maintenance jackets. However, these reports do not include daily operator maintenance. Through interview data, operator maintenance added an estimated 30 minutes to one-hour labor cost to each sweep. This additional cost is included in Table 4.6.

Table 4.6. NSAMB Sweeper Costs (Non-equipment)

Sweeper	Labor, Materials, Maintenance	Depreciation	Total
#1	$729.05	$6,103.34	$6,832.39
#2	103.45	5,821.54	5,924.99
Total Annual Costs:	832.50	11,924.88	12,757.38

The total annual cost of the NSAMB street sweeping function (including equipment, maintenance, and labor costs) is derived from the Tables 4.3 and 4.6:
$65,245.88 + $12,757.38 = $78,003.26

Alternately, using Tables 4.5 and 4.6, total annual costs are:

$73,349.31 + $12,757.38 = $86,106.69

In-house street sweeping costs NSAMB $123.34 per mile using conservative estimates, and $136.16 per mile using actual street mileage data. If NSAMB were partnering with other public organizations, these data could be used to estimate cost savings.

2. Outsourcing the NSAMB Sweeper Function to Private Industry

One alternative to maintaining in-house street sweeping capabilities is to outsource the function to private industry. Two options are considered below. First, NSAMB could lease sweeper equipment and use existing government personnel to perform sweeper duties. Table 4.7 depicts the associated costs of this option using leasing data from the San Francisco Bay area heavy equipment leasing companies:

Table 4.7. NSAMB Sweeper Equipment Lease Option

Cost Management Strategy	NSAMB Labor Costs	Maintenance, Materials, Depreciation	Equipment Costs	Total Annual Costs
In-house sweeps:				
1. Using NSAMB interview data	$65,245.88	$12,757.38	N/A	$78,003.26
2. Using NSAMB street mileage data	73,349.31	12,757.38	N/A	86,106.69
Outsourced sweeps (equipment only):				
A. GCS Western Power and Equipment Co. (Hayward, CA)				
1. Using NSAMB Interview Data	65,245.88	N/A	74,400.00	139,645.88
2. Using NSAMB Street Mileage Data	73,349.31	N/A	74,400.00	147,749.31
B. Ebersole Sweeping Co. (Orangevale, CA)[7]				
1. Using NSAMB Interview Data	65,245.88	N/A	85,560.00	150,805.88
2. Using NSAMB Street Mileage Data	73,349.31	N/A	85,560.00	158,909.41

Second, NSAMB could outsource the function entirely. This option would require adjusting in-house calculations to reflect the insurance costs discussed earlier in this chapter. Casualty Premium Equivalent Cost (C_{PE}) and Personnel Liability Costs (C_{PL}) are calculated as follows:

[7] Ebersole's equipment charges are based on an annual lease with a monthly rate of $7,130. Whereas GCS Power and Euipment Co. has a division that handles government contracts, Ebersole is in business to serve private industry and small municipalities in the Sacramento area. Ebersole factors insurance and equipment transportation costs into its charges.

$$C_{PE} = 0.005\left[X - \frac{nX}{Y} \right]$$

Casualty Premium Equivalent Cost for NSAMB Sweeper #1:

$C_{PE1} = 0.005$ [($71,904.40- $4,767.26)- (2 ($71,904.40-$4,767.26/11)]

$C_{PE1} = 0.005$ [$67,137.14-$12,206.75]

$C_{PE1} = \$274.65$

Casualty Premium Equivalent Cost for NSAMB Sweeper #2:

$C_{PE2} = 0.005$ [($68,584.12- $4,547.13)- (4 ($68,584.12-$4,547.13/11)]

$C_{PE2} = 0.005$ [$64,036.99-$23,286.18]

$C_{PE1} = \$203.75$

Total Casualty Premium Equivalent Cost for NSAMB Sweepers:

$C_{TOTAL} = C_{PE1} + C_{PE2}$

$C_{TOTAL} = \$274.65 + \$203.75$

$C_{TOTAL} = \$478.40$

NSAMB Personnel Liability Costs:

From interview data:

$C_{PL} = 0.007$ X $65,245.88

$C_{PL} = \$456.72$

Based on actual street mileage data:

$C_{PL} = 0.007$ X $73,349.31

$C_{PL} = \$513.45$

Total Insurance Costs:

From interview data:

$C_{PE} + C_{PL} = \$478.40 + \$456.72$

$C_{PE} + C_{PL} = \$935.12$

From actual street mileage data:

$C_{PE} + C_{PL} = \$478.40 + \$513.45$

$C_{PE} + C_{PL} = \$991.85$

Table 4.8. NSAMB Sweeper Outsource Option (Comparison with In-house Costs)

Cost Management Strategy	Labor Costs	Maintenance, Materials, Depreciation	Equipment Costs	Insurance Costs	Total Annual Costs
In-house sweeps (interview data)	$65,245.88	$12,757.38	N/A	$935.12	$78,003.26
In-house sweeps (street mileage data)	73,349.31	12,757.38	N/A	991.85	86,106.69
Outsource (labor and equipment): Ebersole Sweeping Co. (Orangevale, CA)	100,804.00[8]	N/A	13,912.00	1,000.00[9]	115,716.00

3. City of Monterey In-house Street Sweeping

The City of Monterey owns and operates three Mobil/Athey heavy-duty street sweepers (two full-time units and one reserve). It employs two full-time sweepers (one experienced senior operator and one junior operator). Unlike NSAMB, the City accounts

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[8] Costs reflect the use of one Ebersole Sweeping Company employee and one TYMCO 600 Sweeper. Ebersole uses a $55 per hour labor union rate for sweeping. Labor costs in Table 4.8 are based on 1,264.8 hours of actual sweeping time plus estimated mobilization time. Since Ebersole guarantees its employees at least four hours of work per day when they are called to do a job, the company factors in a minimum of four hours mobilization time to its estimated labor hours. Based on NSAMB's sweeper schedule in Table 4.4, 568 mobilization hours are required.

[9] Unlike GCS Equipment Leasing Company, Ebersole requires all customers to provide proof of insurance (e.g., liability coverage for equipment, personnel liability, and private auto insurance); government agencies could not self indemnify under its contracting arrangement. The contractee (NSAMB) would be required to provide private auto insurance coverage since the sweeper operator would be considered under employment while traveling to the base in his/her own private vehicle.

for labor hours using a computerized activity-based costing system. The management information system, Hansen 7, can retrieve labor hours by individual employee, by specific sweeper, or by specific time interval.

a) Labor Computations

Table 4.9. City of Monterey Annual Street Sweeper Labor Costs (2 FTEs)

Employee	Hourly Rate	Fringe Benefit Rate (25%)	City Overhead Rate (10%)	Public Works Overhead Rate (2.5%)	Total Personnel Costs
Senior	$21.55	$5.39	$2.16	$0.53	$29.63
Junior	20.04	5.01	2.00	0.50	27.55
Total	41.59	10.40	4.16	1.03	57.18

According to City finance records, street sweeper operator labor costs are computed using 26 biweekly pay periods, each averaging 86.87 work hours. These computations take into consideration the ten to eleven paid holidays during the year. Employees receive an additional $0.50 per hour differential pay for the 2:00 A.M. to 6:00 A.M. shift ($520 in additional annual costs). Unlike NSAMB equipment operators, City of Monterey street sweeper operators have no other assigned duties. Annual personnel costs for two full-time equivalents (FTEs) are $129,668.

b) Equipment Related Computations

(1) Computing Real Costs of City of Monterey Street Sweepers

Street Sweeper #1

Acquired: 1998
Cost: $182,500
Service Life: 10 years
Depreciation schedule: 10 years, straight line, assuming no salvage value
Disposal Value: The City of Monterey assumes "zero" disposal value

Since 1998 is the base year, computation of a baseline cost for this equipment is unnecessary. Therefore, C_{MS1} = $182,500.[10]

Street Sweeper #2:

Acquired: 1985
Cost: $74,461.
Service Life: 10 years
Depreciation schedule: 10 years, straight line, assuming no salvage value
Disposal Value: not applicable

Cost of Sweeper #2 in 1998 dollars:
C_{MS2} = ($74,461/106.8) X 169.6
C_{MS2} = $118,245

Street Sweeper #3

Acquired: 1992
Cost: $91,906
Service Life: 10 years
Depreciation schedule: 10 years, straight line, assuming no salvage value
Disposal Value: not applicable

Cost of Sweeper #3 in 1998 dollars:
C_{MS3} = ($91,906/141.3) X 169.6
C_{MS3} = $110,313

The total real cost (C_{MT}) of City of Monterey street sweepers adjusted for inflation is given below:
$C_{MT} = C_{MS1} + C_{MS2} + C_{MS3}$

C_{MT} = $411,058

[10] The cost of Sweeper #1 is substantially higher than the other sweepers. From interviews with the Mechanical Supervisor, the difference in cost reflects the purchase of a diesel-powered unit instead of a less expensive gasoline model. Although initial cost is higher, the diesel sweeper requires less maintenance and is more fuel-efficient than traditional gasoline models.

Depreciation Computations:

Sweeper #1: ($182,500 – 0)/10 = $18,250.00
Sweeper #2: ($118,245 - 0)/10 = $11,824.50
Sweeper #3: ($110,313 – 0)/10 = $11,031.30

As reflected in Table 4.8, annual depreciation for all sweepers is $41,106.

c) City of Monterey Street Sweeper Total Annual Cost

Data collected from Hansen 7 reflected first quarter 1998 costs for City street sweeper maintenance. These data were annualized to compute the yearly maintenance costs reflected in Table 4.10.

Table 4.10. City of Monterey Annual Sweeper Costs (Non-equipment)

Sweeper	Labor,[11] Materials, Maintenance	Depreciation	Total
#1	$19,710	$18,250	$37,960
#2	9,493	11,825	21,318
#3	31,940	11,031	42,971
Total Annual Costs:	61,143	41,106	102,249

The total annual cost of the street sweeping function (equipment, maintenance, and labor costs combined) is derived from the City of Monterey labor cost computations and Table 4.10:

Total Annual Cost = Personnel Costs + (Labor, Materials, Maintenance, Depreciation)
Total Annual Cost = $129,668 + $102,249
Total Annual Cost = $231,917

[11] Unlike NSAMB, the City uses activity based costing and is able to track mechanic costs (salaries, fringe benefits, etc.) as costs factored into the shop labor rates.

Currently, the City of Monterey biweekly services 145 curb-miles within its own city limits, approximately 3,770 curb-miles annually. [12] Based on this, the City's cost per curb-mile is $61.52. (See Table 4.13.) The city also insources sweeper business from the Defense Language Institute (DLI), Sand City, and the Monterey Airport District. (See Table 4.11.) This business adds an additional 858.8 sweeper miles annually, with the adjusted cost per curb-mile falling to $50.10.

Table 4.11. Annual City of Monterey Street Sweeper Miles

Location	Miles Serviced	Interval	Total Miles Serviced
Monterey	145.0	Biweekly	3,770.0
DLI	24.0	Monthly	288.0
Monterey Airport District	3.0	Bimonthly	18.0
	1.0	Monthly	12.0
Sand City	8.4	Weekly	436.8
	4.0	Biweekly	104.0
		Total Annual Miles	**4,628.8**

According to Monterey's Public Works Management Analyst, the city has excess capacity in its street sweeper function and could expand its insourced business to the surrounding communities without adversely affecting its current commitments. As a public organization, the City's goal is to provide quality public services at the least possible public cost. Insourced business helps offset sweeper operation costs.

When contracting with other municipalities, the City charges its sweeper customers using firm-fixed-priced (FFP) contracts, which normally ensures the City will recoup its costs in providing the additional services. However, the City has offered

[12] A curb-mile is equivalent to one statute mile of paved street with a curb. For example, two miles of a two-lane city street with curbs along both sides would contain four curb-miles. (Sweepers must make one pass over each traffic lane.) The City of Monterey uses cost per curb-mile for performance measurement and benchmarking purposes. However, it may expand sweeping functions to include all paved streets, not just streets with curbs. To simplify analysis in this study, curb-mile and street miles will simply be referred to as "sweeper miles."

public entities other than municipalities, such as DLI, a sweeper contract with a reimbursable portion for unused labor hours. This arrangement gives the public agency (e.g., DLI) decided flexibility in controlling its sweeper costs. This arrangement allows the City to adjust its revenues and expenses to break-even within its sweeper functions. If the City makes a slight profit from municipality business, it can pass these savings on to other public organizations through partnering arrangements. This ensures a zero balance while satisfying its customers and others stakeholders.

4. Outsourcing the City of Monterey Sweeper Function to Private Industry

Table 4.12. City of Monterey Sweeper Outsource Option (Comparison with In-house Costs)

Cost Management Strategy	Labor Costs	Maintenance, Materials, etc.	Equipment Lease Costs	Total Annual Costs
In-house sweeps	$129,668	$102,249[13]	N/A	$231,917
Outsource sweeps within city limits (equipment only):				
A. GCS Western Power and Equipment Co.	129,668	N/A	74,400	204,088
B. Ebersole Sweeping Co.	129,668	N/A	82,940	212,608
Outsource sweeps within city limits (labor and equipment):				
A. Ebersole Sweeping Co.	414,700	N/A	82,940	497,640

C. SUMMARY OF NSAMB AND CITY OF MONTEREY STREET SWEEPING DATA ANALYSIS

At first glance, the City's street sweeper operations appear more costly than NSAMB. However, comparing costs per sweeper mile shows the opposite.

[13] Includes depreciation

Table 4.13. Summary of NSAMB Sweeper Study Data

Organization	Cost Management Strategy	Annual Sweeper Miles	Cost Per Mile[14]
NSAMB	In-house sweeping	632.4	$123.34 / $136.16
GCS Western Power and Equipment Co.	Sweeping outsourced to private sector (equipment only)	632.4	124.84 / 137.73
Ebersole Sweeping Co.	Sweeping outsourced to private sector (equipment only)	632.4	238.47 / 251.28
Ebersole Sweeping Co.	Sweeping outsourced to private sector (labor and equipment)	632.4	182.98

Table 4.14. Summary of City of Monterey Sweeper Study Data

City of Monterey	In-house City sweeps only	3,770	$61.52
City of Monterey	In-house sweeps including insourced business	4,628.8	50.10
GCS Western Power and Equipment Co.	Sweeping outsourced to private sector (equipment only)	3,770	54.13
Ebersole Sweeping Co.	Sweeping outsourced to private sector (equipment only)	3,770	56.39
Ebersole Sweeping Co.	Sweeping outsourced to private sector (labor and equipment)	3,770	132.00

D. COST STUDY #2 (NSAMB AND CITY OF MONTEREY STORM DRAIN MAINTENANCE)

1. NSAMB In-house Storm Drain Maintenance

NSAMB owns and operates one VAC-CON Storm Water Pollution Prevention Truck. This truck requires two operators who perform sanitary and storm water sewer

[14] For NSAMB cost per mile entries, the first cost figure is a conservative estimate of costs using interview data. The second figure is based on actual street mileage data extracted from NSAMB Public Works standing job orders (SJOs). These figures do not include overhead for buildings and facilities.

maintenance. Duties include removing debris from catch basin bottoms, pipelines, and manholes (NSAMB Public Works Department, Standing Job Order #6R56TA, April 1996).

a) Labor Computations

Table 4.15. NSAMB Storm Drain Personnel Hourly Wages Including Fringe Benefits

Position	Hourly Wage	Fringe Benefit Factor (24.8%)	Total Hourly Wage
Operator (WG-10)	$17.93	$4.45	$22.38
Operator (WG-8)	16.43	4.07	20.50
Mechanic (WG-8)	16.43	4.07	20.50
Sum of Cost:	50.79	12.59	63.38

Table 4.16. Storm Drain Maintenance Personnel Salaries Including Fringe Benefits

Position	Annual Salary	Fringe Benefit Factor (24.8%)	Total
Operator (WG-10)	$37,419.91	$9,280.14	$46,707.06
Operator (WG-8)	34,289.41	8,503.77	42,793.18
Mechanic (WG-8)	34,289.41	8,503.77	42,793.18
Sum of Costs:	105,998.73	26,287.68	132,286.41

Table 4.17. NSAMB VAC-CON Personnel Costs Based on Interview Data

Position	% of Time Spent Performing VAC-CON Function	Annual Salary Accounting for VAC-CON Function	12% Overhead	Total
Operator (WG-10)	10%	$4,670.00	$560.40	$5,230.40
Operator (WG-8)	10%	4,279.32	427.93	4,707.25
Mechanic (WG-8)	20%	8,558.64	1,027.04	9,585.68
Sum of Costs:		17,507.96	2,015.37	19,523.33

Table 4.18. NSAMB Labor Cost Computations Using Storm Drain Hours

Position	Hourly Wage Including Fringe Benefit Factor	Labor Hrs Required	Annual Labor Cost	12% Overhead	Total
Operator (WG-10)	$22.38	254[15]	$5,684.52	$682.14	$6,366.66
Operator (WG-8)	20.50	254	5,207.00	624.84	5,831.84
Mechanic (WG-8)[16]	***	***	8,558.64	1,027.04	9,585.68
Sum of Costs:			19,450.16	2,334.02	21,784.18

b) Equipment Related Computations

(1) Computing Real Cost of NSAMB VAC-CON Truck

VAC-CON Truck:

Acquired: December 1997 (considered 1998 equipment for depreciation purposes)
Cost: $153,339.17
Service Life: 11 years
Depreciation schedule: 11 years, straight line

Disposal Value: 6.63% of acquisition cost: $10,166.39
DV = 153,339.17 x 0.0663 = $10,166.39

Depreciation Computation:
($153,339.17 - $10,166.39)/11 = $13,015.71

[15] Required labor hours were derived from SJOs covering NPS, FNMOC, and La Mesa Housing Storm Drain Maintenance.

[16] Heavy Equipment Mechanic costs related to the storm drain maintenance function are not computed in SJOs. Mechanic costs were computed using interview data in Table 4.17.

c) *NSAMB VAC-CON Total Annual Costs*

Table 4.19. NSAMB In-house VAC-CON Costs

Method	Labor[17], Materials, Maintenance	Depreciation	Personnel Costs	Total Annual Costs
Interview Data	$3,399.44	$13,015.71	$19,523.33	$35,938.98
Actual Storm Drain Maintenance Hours Data[18]	3,399.44	13,015.71	21,784.18	38,199.83

2. Outsourcing the NSAMB Storm Drain Maintenance Function to Private Industry

NSAMB could outsource this function entirely. However, none of the companies surveyed offered contract labor as a contract option. Data presented in this study, therefore, compare in-house operations with equipment only lease options. Outsourcing would require adjusting in-house calculations to reflect the insurance costs discussed earlier in this chapter. Casualty Premium Equivalent Cost (C_{PE}) and Personnel Liability Costs (C_{PL}) are calculated below:

$$C_{PE} = 0.005\left[X - \frac{nX}{Y}\right]$$

Casualty Premium Equivalent Cost for NSAMB VAC-CON:
$C_{PE} = 0.005$ [$153,339.17 - $10,166.39] - 0
$C_{PE} = 0.005$ [$143,172.78]

$C_{PE} = \$715.86$

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[17] Includes operator maintenance (e.g., general servicing) but not standard maintenance reflected in Tables 4.16 and 4.17 labor hours.

[18] NSAMB database entries for storm drain maintenance were reviewed for calendar years 1996-1999. Due to seasonality of maintenance requirements and large variations in weather patterns in 1998, data on storm drain maintenance were compiled for CY1997. According to NSAMB Public Works budget analysts, 1997 data (labor hours and maintenance costs) reflected an average year.

NSAMB Personnel Liability Costs:

From interview data:
C_{PL} = 0.007 X $19,523.33
C_{PL} = $ 136.66

Based on actual street mileage data:
C_{PL} = 0.007 X $21,784.18
C_{PL} = $ 152.49

Total Insurance Costs:

From interview data:

$C_{PE} + C_{PL}$ = $715.86 + $136.66

$C_{PE} + C_{PL}$ = $852.52

From actual street mileage data:

$C_{PE} + C_{PL}$ = $715.86 + $152.49

$C_{PE} + C_{PL}$ = $868.35

Table 4.20. NSAMB Storm Drain Maintenance Outsource Option (Comparison with In-house Costs)

Cost Management Strategy	Labor Costs	Maintenance, Materials, Depreciation	Equipment Costs	Insurance Costs	Total VAC-CON Costs
In-house Maintenance					
1. Using NSAMB interview data	$19,523.33	$16,415.15	N/A	$852.52	$36,791.00
2. Using NSAMB storm drain maintenance hours data	21,784.18	16,415.15	N/A	868.35	39,067.68
Outsource (equipment only):					
GCS Power and Equipment Co.					
1. Using NSAMB interview data	19,523.33	N/A	$93,600.00	N/A	113,123.33
2. Using NSAMB storm drain maintenance hours data	21,784.18	N/A	93,600.00	N/A	115,384.18

3. City of Monterey In-house vs. Outsourced Storm Drain Maintenance

In 1998, the City of Monterey approved purchasing a 1999 Volvo Vactor truck for storm drain and sewer maintenance. It had previously rented a privately owned truck as needed. However, new EPA mandates, in the National Pollution Disposal Elimination System (NPDES) Phase II regulations, require the City to comply with all elements of its "Good Housekeeping/Pollution Prevention for Municipal Operations" by 2002 (City of Monterey internal memorandum dated May 6, 1998). Consequently, the City had to adopt a long-term outlook on storm drain operations and analyzed the costs and benefits of purchasing its own truck. The data presented below are discussed in Appendix G.

a) Labor Computations

Table 4.21. City of Monterey Vactor Labor Costs (2 FTEs)

Employee	Hourly Rate	Fringe Benefit Rate (25%)	City Overhead Rate (10%)	Public Works Overhead Rate (2.5%)	Total Personnel Costs
Senior	$19.57	$4.89	$1.96	$0.49	$26.91
Junior	17.74	4.43	1.77	0.44	24.38
Total	37.31	9.32	3.73	0.93	51.29

According to City finance records, Vactor operator labor costs are computed using 26 biweekly pay periods, each averaging 86.87 work hours. These computations take into consideration the ten to eleven paid holidays during the year. Unlike NSAMB equipment operators, City of Monterey VAC-CON operators have no other assigned duties. Annual personnel costs for two full-time equivalents (FTEs) are $115,845.[19]

b) Equipment Related Computations

(1) Computing Real Cost of City of Monterey Vactor Truck

Vactor Truck:

Acquired: 1998
Cost: $142,000
Service Life: 15 years
Depreciation schedule: 15 years, straight line
Since 1998 is the base year, computation of a baseline cost for this equipment is unnecessary. Therefore, C_{MV1} = $142,000.

Depreciation computation:
$142,000/15 = $9,467

[19] Unlike City street sweeping, Vactor truck operators do not receive shift differential pay.

c) *City of Monterey Vactor Total Annual Costs*

Table 4.22. City of Monterey Annual Vactor Costs (Non-equipment)

Vactor	Labor,[20] Materials, Maintenance	Depreciation	Total
#1	$9,336[21]	$9,467	$18,803

The total annual cost of the storm drain function (equipment, maintenance, and labor costs combined) is derived from the City of Monterey labor cost computations and Table 4.20:

Total Annual Cost = Personnel Costs + (Labor, Materials, Maintenance, Depreciation)

Total Annual Cost = $115,845 + $18,803

Total Annual Cost = $134,648

4. Outsourcing the City of Monterey Vactor Function to Private Industry

As noted in Part 2 (Outsourcing the NSAMB Storm Drain Maintenance Function to Private Industry), none of the companies surveyed offered contract labor as an option. Data presented in this study, therefore, compares in-house operations with equipment only lease options.

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[20] Unlike NSAMB, the City uses activity based costing and is able to track mechanic costs (salaries, fringe benefits, etc.) as costs factored into the shop labor rates.

[21] Since the City has owned the Vactor truck for less than one year, these costs are Public Works estimates.

Table 4.23. City of Monterey Vactor Purchase vs. Lease Data

Cost Management Strategy	Labor Costs	Maintenance, Materials, Depreciation	Equipment Costs	Total VAC-CON Costs
Vactor Purchase	$115,845	$18,803	N/A	$134,648
Lease (weekly rate) [22]	115,845	N/A	$40,000	165,845
Lease (monthly rate)	115,845	N/A	27,200	143,045
GCS Power and Equipment Co. (monthly rental)	115,845	N/A	74,400	190,245

E. SUMMARY OF NSAMB AND CITY OF MONTEREY STORM DRAIN MAINTENANCE DATA ANALYSIS

Table 4.24. Summary of Storm Drain Maintenance Data

Organization	Cost Management Strategy	Total Annual Costs
NSAMB	In-house maintenance	
	1. Interview data	$36,791.00
	2. Actual storm drain hours data	39,067.68
	Outsource to private sector(equipment only):	
	A. GCS Power and Equipment Co.	
	1. Interview data	113,123.33
	2. Actual storm drain hours data	115,384.18
City of Monterey	In-house City maintenance	134,648.00
	Storm drain maintenance outsourced to private sector	
	A. Unspecified City lease (weekly rate)	165,845
	B. Unspecified City lease (monthly rate)	143,045
	C. GCS Power and Equip. (monthly rate)	190,245

[22] Lease data is from an unnamed company (City of Monterey internal memorandum dated May 6, 1998). With the new NPDES requirements, the City estimated that compliance would require 16 weeks of annual maintenance. If the City agreed to a monthly lease, the vendor would discount its costs considerably, as reflected by the total annual costs of a monthly lease in Table 4.23.

F. SUMMARY OF COST STUDIES

1. Street Sweeping

Table 4.25. Summary of NSAMB Sweeper Study Data

Organization	Cost Management Strategy	Total Annual Costs	Cost Per Mile[23]
NSAMB	In-house sweeping	$78,003.26/ $86,106.69	$123.34/ $136.16
GCS Western Power and Equipment Co.	Sweeping outsourced to private sector (equipment only)	139,645.88/ 147,749.31	124.84/ 137.73
Ebersole Sweeping Co.	Sweeping outsourced to private sector (equipment only)	150,805.88/ 158,909.41	238.47/ 251.28
Ebersole Sweeping Co.	Sweeping outsourced to private sector (labor and equipment)	115,716.00	182.98

[23] For NSAMB cost per mile entries, the first cost figure is a conservative estimate of costs using interview data. The second figure is based on actual street mileage data extracted from NSAMB Public Works standing job orders (SJOs). These figures do not include overhead for buildings and facilities.

Table 4.26. Summary of City of Monterey Sweeper Study Data

Organization	Cost Management Strategy	Total Annual Costs	Cost Per Mile[24]
City of Monterey	In-house City sweeps only	$231,917	$61.52
City of Monterey	In-house sweeps including insourced business	231,917	50.10
GCS Western Power and Equipment Co.	Sweeping outsourced to private sector (equipment only)	204,088	54.13
Ebersole Sweeping Co.	Sweeping outsourced to private sector (equipment only)	212,608	56.39
Ebersole Sweeping Co.	Sweeping outsourced to private sector (labor and equipment)	497,640	132.00

NSAMB data suggest that the cost per mile to perform in-house street sweeping services is comparable and, in some cases, less than the costs it would incur if the sweeper function were outsourced to private industry using equipment lease contracts. Outsourcing both labor and equipment to the private sector appears to be very costly, given the large overhead (e.g., mobilization) costs involved in maintaining this small-scale function.

The City of Monterey maintains a low cost-per-mile for its sweeper function by exploiting economies of scale. In fact, the City's rate for in-house sweeps within the city limits is approximately one-half the NSAMB rate. Insourced business from other municipalities further reduces this rate below projected private sector business rates. From interviews with its public works personnel, the City apparently has excess labor and equipment capacity to continue insourcing sweeper business and to explore potential partnering arrangements with local public organizations to provide sweeper services as a low cost alternative to outsourcing or separate in-house operations.

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[24] For NSAMB cost per mile entries, the first cost figure is a conservative estimate of costs using interview data. The second figure is based on actual street mileage data extracted from NSAMB Public Works standing job orders (SJOs). These figures do not include overhead for buildings and facilities.

2. Storm Drain Maintenance

The City of Monterey uses the number of catch basins serviced[25] to measure performance and establish benchmarks. Interviews indicated that NSAMB does not track storm drain maintenance performance or the number of storm drains serviced annually. In the absence of this data, it is difficult to compare the functional efficiencies of storm drain maintenance for these two organizations. However, interviews suggested that NSAMB services 118 catch basins annually. Table 4.27 and 4.28 compare NSAMB and City of Monterey calculated in-house costs with projected outsourcing costs.

Table 4.27. Summary of NSAMB Storm Drain Maintenance Data

Cost Management Strategy	Total Annual Costs	Cost Per Catch Basin
In-house maintenance		
1. Interview data	$36,791.00	$311.79
2. Actual storm drain hours data	$39,067.68	331.08
Outsource to private sector(equipment only):		
A. GCS Power and Equipment Co.		
1. Interview data	$113,123.33	958.67
2. Actual storm drain hours data	$115,384.18	977.83

Table 4.28. Summary of City of Monterey Storm Drain Maintenance Data

Cost Management Strategy	Total Annual Costs	Cost Per Catch Basin
In-house City maintenance	$134,648	$146.52
Storm drain maintenance outsourced to private sector		
A. Unspecified City lease (weekly rate)	$165,845	180.46
B. Unspecified City lease (monthly rate)	$143,045	155.65
C. GCS Power and Equipment Co. (monthly rate)	$190,245	207.01

[25] A City memorandum dated May 6, 1998 indicated that the City services 919 catch basins annually.

NSAMB data suggest that the cost per catch basin to perform in-house storm drain maintenance services is comparable and, in some cases, less than the costs NSAMB would incur if the storm drain maintenance function were outsourced to private industry using equipment lease contracts. Cost per catch basin is very high because of the annual depreciation and labor costs associated with a very small operation. Outsourcing the function entirely (labor and equipment) to the private sector appears to be out of the question as an alternative to current in-house operations.

The City of Monterey maintains a competitive cost per catch basin for its storm drain maintenance function by exploiting economies of scale. The City's rate for in-house storm drain maintenance within the city limits is approximately one-half that of NSAMB. Currently, the City is considering insourcing storm drain maintenance business (i.e., renting its Vactor truck to neighboring cities, such as Carmel). Given excess storm drain maintenance labor and equipment capacity, the City could explore potential partnering arrangements with other public organizations to provide storm drain services as a low cost alternative to outsourcing or separate in-house operations. The City's cost-reimbursable contracts with other public entities (i.e., the DLIFLC and POM partnering arrangement for building maintenance services), if applicable to the storm drain maintenance function, could offer NSAMB a low-cost alternative to the more costly FFP contracts associated with private industry outsourcing.

V. OVERVIEW OF THE ADVANTAGES AND DISADVANTAGES OF OUTSOURCING AND PARTNERING

This chapter reviews common reasons organizations outsource or partner and discusses the advantages and disadvantages associated with each alternative.

A. OUTSOURCING

A survey conducted by the Outsourcing Institute (1998) identified ten common reasons why organizations outsource:

1. Reduce and control operating costs
2. Improve organizational focus
3. Gain access to world-class capabilities
4. Free internal resources for other purposes
5. Obtain resources are not available internally
6. Accelerate reengineering benefits
7. Delegate difficult to manage/out of control functions
8. Make capital funds available
9. Share risks
10. Provide cash infusion

The 8th Quadrennial Review of Military Compensation (April, 1997) cites similar reasons why organizations consider outsourcing. The 8th Quadrennial Review of Military Compensation (1997) lists the following reasons why organizations consider outsourcing:

1. Improve organizational focus
2. Gain access to world-class capabilities
3. Accelerate reengineering benefits
4. Share risks
5. Free resources for other purposes
6. Control operating costs

Considering the reasons why organizations outsource, by both studies, reasons most relevant to this study include:

1. Reduce and control operating costs

2. Improve organizational focus
3. Gain access to world-class capabilities

These reasons were chosen because they are the most relevant to the selected heavy equipment functions at NSAMB and the City of Monterey.

1. Advantages of Outsourcing

A commonly recognized advantage to outsourcing is reduced operating costs. Studies by the Reason Foundation (1998), DoD (1996), GAO (1997), and CNA (1996) show that government agencies have reduced costs and increased efficiency by outsourcing non-core functions. According to Hilke (1993) more than 100 studies of federal, state, and local agency outsourcing competitions over a 20-year span have demonstrated cost savings. Functional areas competed include refuse collection, legal services, payroll and data processing, air traffic control, family social services, port control, and weather forecasting. These studies concluded that outsourcing savings ranged from 20 to 50 percent (Hilke, 1993). Studies also indicated the primary method of obtaining the cost savings stemmed from outsourcing to private firms. In the cases where functions were retained in-house, the cost savings accrued from increased competition, the movement towards the most efficient organization (MEO), and outsourcing to other government agencies (Hilke, 1993). Hilke (1993) further summarized the wide variety of reasons for the cost savings as follows:

1. Better management techniques
2. Better and more productive equipment
3. Greater incentives to innovate
4. More efficient deployment of workers
5. Improved incentive pay structures
6. Greater use of part-time and temporary employees
7. Better utilization of comparative-cost information
8. More work scheduled for off-peak hours

Hilke also reaffirmed that the central factor driving outsourcing benefits was competition.

Similarly, the Center for Naval Analysis (CNA) studied outsourcing competitions conducted from 1978 to 1994 (Outsourcing Opportunities for the Navy, 1996). CNA

concluded that outsourcing reduced costs an average of 30 percent. It also found that roughly 50 percent of all competitions are outsourced and 50 percent are retained in-house. Of those retained in-house, the MEO process netted average savings of 20 percent.

Although CNA and other institutional studies project optimistic estimates of cost savings from competitive outsourcing, it should be noted that the data in many studies are too limited to reach solid conclusions about cost saving trends in outsourcing (GAO, 1999). Questions exist about the precision and consistency of savings estimates, as some skeptics contend that savings projections are highly inflated or overly optimistic. Moreover, DoD databases used to record savings from A-76 competitions have substantial limitations which call into question the usefulness of such data for tracking cost savings over time (GAO, 1999). A 1997 GAO report urged caution regarding the magnitude of savings likely to be achieved from outsourcing. It noted that expected savings can change over time with changes in the scope of work required or mandated wage changes. Further, GAO recognized that continuing personnel reductions and declining budgets could make projected savings levels difficult to sustain.

Outsourcing studies also claim that outsourcing improves organizational focus. According to the Outsourcing Institute (1998), the Commission On Roles and Missions of the Armed Forces, and the 8th Quadrennial Review of Military Compensation an organization must define its core competencies and those business functions that are not core. The organization should then outsource its non-core functions and focus on its core competencies. A study by Quinn, Doorley, and Paquette (1990) entitled, "Leveraging Intellect" agrees with this finding. The authors state that companies can become "simultaneously the lowest cost, broadest line, most flexible and most highly differentiated producers in their markets" by combining core competencies with aggressively outsourcing non-core competencies (Quinn, Doorley, and Paquette, 1990, p. 13). They cite MCI as a company that has successfully used this outsourcing strategy. MCI has 1,000 full-time internal technical personnel working to develop its core software and electronic hardware. However, it has over 20,000 professionals working on a contract basis conducting other software development, construction, and system maintenance.

One caveat to improving focus, however, concerns the role of outsourcing in the public sector, specifically the military. Although studies insist that outsourcing will improve organizational focus in both the private and public sectors, the hierarchical structure of U. S. military organizations inherently focuses on supporting U. S. warfighting capabilities; all other missions and focus areas are subordinate to this cause. Consequently, the benefit of improving focus through outsourcing may not carry the same importance in military organizations as it does with other public or private organizations.

Organizations also often consider outsourcing when they do not possess the management or technical skills to perform the function effectively or efficiently (8th Quadrennial Review of Military Compensation, 1997). Outsourcing is one method to capture those skills not readily available in-house and draw on outside expertise to perform non-core function. Firms that specialize in specific services often generate a large volume of business and economies of scale. This means that firms offering specialized services can operate and maintain state-of-the-art systems more cost effectively than others. Outsourcing to firms with economies of scale would allow the government to exploit up-to-date technologies often at a lower price than possible in-house. It also allows an organization to redirect resources from non-core capabilities toward core competencies (8th Quadrennial Review of Military Compensation, 1997).

2. Disadvantages of Outsourcing

While the current trend toward outsourcing is increasing, especially in the DoD, there are potential disadvantages associated with outsourcing. CNA identified several outsourcing disadvantages in their January 1997 brief titled "Case Studies in DoD Outsourcing." Some of the potential outsourcing pitfalls identified by CNA and other studies include:

1. Flaws in the A-76 process and the time required to complete an A-76 cost study
2. In-house morale problems due to persistent downsizing
3. No requirement to re-compete functions after a set time period

4. Long learning curves or break-in periods for both the contractor and the outsourcing organization
5. Hidden costs
6. Focus on cost reduction instead of performance and process improvement
7. Lack of shared values between the contractor and the outsourcing organization

Bardi and Tracey (1991) also identify employee morale problems, potential loss of management control, and loss of skills critical to the organization as outsourcing disadvantages.

Of the various outsourcing disadvantages, the ones considered most relevant to this study include:

1. Flaws in the A-76 process
2. In-house morale problems
3. Potential loss of management control
4. Loss of skills critical to the organization

These negative outsourcing aspects are most relevant to the heavy equipment functions being compared between NSAMB and the City of Monterey.

GAO (April 1997) and Serlin (1997) identified flaws in the A-76 process as a potential outsourcing disadvantage. The most notable flaw in the A-76 process is the time it takes to perform a Commercial Activities study under the OMB A-76 guidelines. The A-76 guidelines estimate at least 18 months, however, in many cases it has taken longer. For example, the A-76 competition lasted five years to outsource Base Operating Support at Marine Corps Recruit Training Deport, Parris Island.

Further, GAO found that A-76 competitions are not uniformly calculated across the services or within a particular service for the same function. In an analysis of Air Force, Army, DFAS, and Navy cost savings calculations, each organization used a different method to establish baseline personnel costs. Thus, no two organizations' cost savings could produce accurate comparisons (GAO, 1999). Such flawed baseline data could lead to erroneous conclusions about the effectiveness and potential cost savings of outsourcing.

Another flaw in the A-76 process identified by GAO and CNA is the artificial overhead rate. Prior to 1996, A-76 competitions were not required to include overhead costs in their in-house cost estimates (GAO, April 1997). In 1996, OMB revised the A-76 process and established a standard 12 percent overhead rate for all government in-house cost estimates (OMB, 1996). GAO reports that the 12 percent rate is not based on empirical cost evidence. It is based on a midpoint of rates proposed by OMB (GAO, April 1997). GAO also concluded that had the government applied the 12 percent rate to its in-house estimates prior to 1996, approximately one-third of the competitions won in-house would have been awarded to the private sector (GAO, April 1997).

Outsourcing also creates in-house workforce morale problems (Brower, 1996). An April 1997 CNA study found that employee morale suffers as soon as an outsourcing competition is announced; the longer the A-76 process takes, the greater the negative impact on employee morale. In addition, the CNA study found that in-house workforce morale problems exist regardless of whether the function is outsourced or retained in-house. Seeing colleagues laid off or displaced due to the competition negatively affects the workers who are retained. In extreme cases, worker sabotage is a possibility.

Another drawback for most organizations considering outsourcing is the potential loss of management control over that function (Bardi and Tracey, 1991). If a function is performed in-house and the chain of command wants to change the schedule or modify the requirement, an order is given, and the change is implemented. This is not the case when contracts are involved. To request a schedule change or requirement modification, management must go through the respective contracting office. Often, the contracting office is not co-located with management. In many cases, the contracting office is in another city or time zone. Even if the contracting office has approved the change, the contractor may not have the resources available to accommodate the schedule change or modified requirement. The contractor will likely provide what is specified in the written contract and charge additional fees for any changes.

A final disadvantage is losing skills from the organization (Bardi and Tracey, 1991). Once a particular function is outsourced, the organization may lose its internal knowledge of the function. Without this knowledge, future planning is difficult, and it is harder to recover a function should outsourcing fail (Quinn and Hilmer, 1994).

Outsourcing under these circumstances may place more reliance on the contractor and make the organization dependent on the contractor's expertise.

8. Outsourcing Summary

Understanding the advantages and disadvantages associated with outsourcing is important in assessing possible candidates for outsourcing within the DoD. This section explored outsourcing benefits and drawbacks within the DoD and identified those advantages and disadvantages most relevant to selected heavy equipment functions for NSAMB and the City of Monterey.

B. PARTNERING

Studies conducted by Rand Corporation (Setear, et. al., 1990) and the U.S. Army Corps of Engineers (1996) identified several reasons organizations, particularly military and public sector activities, choose partnering as an alternative to internal provision:

1. Leverage assets, reduce costs, and decrease outlays
2. Create new capabilities or assets that help the organization accomplish its mission
3. Improve relationships between the military and other public organizations
4. Foster good working relationships with the local community
5. Ensure compatibility with best practices
6. Allow decentralized control

1. Advantages

Because this study is concerned with cost management and efficient business practices, two of these advantages are most relevant: (1) leveraging assets, reducing costs, decreasing outlays, and (2) ensuring compatibility with best practices.

a) Leveraging Assets, Reducing Costs, Decreasing Outlays

In almost every organizational change analysis, saving or conserving assets through direct or indirect partnering effects is one of the key benefits of partnering

(Lipman-Blumen, 1996). Partnering as an organizational tool to save or conserve assets has been the key reason for its implementation in private industry. In a recent survey of the U.S. biotech industry, sixty-one percent of the interviewed biotech companies wanted to develop and market new drugs in partnership with other companies (Lipman-Blumen, 1996). Partnering was expected to leverage each company's assets (i.e., the drug makers and the marketing firms), reducing costs and decreasing capital outlays in areas unfamiliar to the participating companies. This same concept has been applied to public-private partnering where conserving capital is secondary to efficiently using existing assets.

In the rapidly changing communications-electronics world, the Army has partnered with private industry to develop communications hardware more effectively than when using traditional outsourcing methods (Chang, et. al., 1999). By investing both private and public funds in a development project, each partner shares the incentive to deliver the product on time and within budget. This reduced each partner's outlays and the overall project cost.

b) Ensuring Compatibility with Best Business Practices

Recognized best business practices, including information sharing and benchmarking are key elements in partnerships (Townley Global Management Center, 1998). Sharing environmental information between Northrop-Grumman Corporation and the Environmental Protection Agency illustrates successful information sharing within a partnership (Townley Global Management Center, 1998).

Similarly, benchmarking is used to measure the effectiveness of each partner's performance (Camp, 1989). Ensuring each partner's performance level reaches a mutually established standard will provide the information the partnership needs to improve (Camp, 1989). Utilizing benchmarking to establish performance goals is essential to successful partnerships.

2. Disadvantages

Key government partnership disadvantages related to this study and previously encountered in government partnerships include: (1) legal complexities, (2) difficulty in establishing a collective vision, (3) difficulties in shared power arrangements, and (4) personnel morale problems (Setear, et. al., 1990).

a) Legal Complexities

Most partnering relationships are outlined in a non-binding partnering charter document (State Supply Commission, 1998). Depending on the complexity of the working arrangement, appropriate steps must be taken to ensure that the partnership does not violate fiduciary responsibilities. Mixed funding sources may require complex arrangements such as trusts, foundations, or Interagency Agreements (Nagle, 1999). An even greater legal challenge may exist if the proposed partnership is not allowed or specifically prohibited by current civil or criminal statute. Creating a fire protection partnership between DLI and the City of Monterey required a special act of Congress (Public Law 103-337, Section 816). Existing law prohibited this partnership (U. S. Army, 1999). Legal partnership complications can make the proposed arrangement unworkable (Townley Global Management Center, 1998).

b) Difficulty in Establishing a Collective Vision

Developing a single organizational vision may be difficult in a partnership. According to a Rand study of organizations facing change (Setear, et. al., 1990), the most important factor determing success in their adaptation is whether they can exploit an appropriate organizational vision in their decision making. Organizations contemplating partnering arrangements must consider diverse management styles, approaches, and expectations of the parties involved. Differences can lead to dissention among key stakeholders concerning the partnership's collective vision. Bryson (1995) echoes this sentiment in noting that it is rarely possible to achieve consensus when organizations have diverse goals. The best that can be hoped for is widespread general agreement concerning a collective vision.

In partnering arrangements where organizational cultures and structures differ, developing a meaningful vision between organizations is extremely challenging. Individual organizations come together with separate issues, goals, and expectations, making it difficult to meld all concerns into a single vision. An alternative is to partner around a project or function.

c) Difficulties in Shared Power Arrangements

Another disadvantage of partnering is that the parties may be reluctant to share power, which may become an obstacle to partnering implementation. Power, according to Kotter (1979), is the ability to influence others to do what they would not do on their own. In the case of bureaucratic public sector institutions, power sharing is difficult and conflicts with the idea of "what-we-have-we-hold" (Kooiman, 1993). This phrase exemplifies the public sector psychological and political resistance to power sharing.

Individuals and organizations may also be unwilling to acknowledge others' power or knowledge (i.e., individuals and/or organizations) (Kotter 1985). Failing to acknowledge a partner's knowledge or power can severely limit the partnering process. The inability to share power can have serious consequences on the partnership's outcome (Lipman-Blumen, 1996). Ultimately, lack of power sharing can result in failed partnerships.

d) Morale Problems

Although partnering can positively affect working relationships between organizations, it shares with outsourcing the potential negative impact on employee morale. The cost savings realized in partnering has a labor component which can potentially impact worker relations and the work environment, causing morale problems (Setear, et. al., 1990). As with outsourcing, partnering arrangements may contribute to in-house morale problems due to the workforce reductions or reassignments necessary to facilitate new ways of doing business. However, since partnering involves informal agreements which tend to leave organizations intact structurally, reductions or reassignments in partnering arrangements are normally minimal (U. S. Army Corps of

Engineers, 1991); therefore, partnering is less likely to adversely impact morale than outsourcing.

3. Partnering Summary

Partnering is a mutual agreement between two or more to maximize efficiencies while minimizing costs and decreasing capital outlays. Partnering is most productive when conducted in a business-like arrangement using best practices for the common good of all paticipants. Through partnering, each organization has the opportunity to enhance its performance using best practices. If done correctly, partnering can help organizations successfully leverage assets, reduce costs and decrease capital outlays.

As in any situation involving collaborative efforts between two or more organizations, partnering requires cooperation and compromise. Overcoming legal obstacles may require extraordinary measures, as in the NSAMB/City of Monterey fire protection partnership (U.S. Army, 1999). Each partner's ability to overcome potentially debilitating internal obstacles, such as power sharing, and establishing a common collective vision is also essential to the partnership.

4. Summary

Table 5.1. Advantages and Disadvantages of Partnering and Outsourcing

	Outsourcing	Partnering
Advantages	*Reduce and control operating costs *Improve organizational focus *Gain access to world-wide capabilities	*Leverage assets *Reduce costs *Decrease outlays *Ensure compatibility with best practices
Disadvantages	*Flaws in the A-76 process *In-house morale problems *Potential loss of management control *Loss of skills critical to the organization	*Legal complexities *Difficulty establishing a collective vision *Difficulties in sharing power *Morale problems

Although industry literature on partnering and outsourcing list many advantages and disadvantages in adopting these arrangements (some sources cite certain elements as common to both outsourcing and partnering), Table 5.1 summarizes those elements most often cited which are relevant to this study.

The most common objective of both outsourcing and partnering is reducing costs. While outsourcing strives to reduce costs via formal contracts controlled by federal regulation, partnering uses informal arrangements, which depend greatly on cooperation and collective vision among the parties. As reflected in Table 5.1, outsourcing and partnering share many advantages because they have the common goal of reducing costs. However, each method attempts to achieve this objective through different means. Outsourcing finds an outside agency to complete the task more efficiently; partnering is an informal agreement where entities work together to gain mutual cost savings. The difference in approaches causes differences between the disadvantages of each method.

When considering cost savings, several studies consider outsourcing a viable alternative to in-house operations. They cite substantial projected savings gained through

outsourcing of organizations' non-core functions. Although data appear to support this conclusion, GAO studies have shown that the data may not be accurate and reliable because of inconsistencies in costing methodologies. Flaws in the A-76 process are common disadvantages to outsourcing. The time required to complete an A-76 study, coupled with variations in savings calculations and the use of artificial overhead rates, make accurate cost savings estimations difficult. Partnering in the public sector, on the other hand, may yield substantial cost savings through the pooling of resources and informal cooperative agreements, which give the parties cost saving advantages over alternatives presented by private sector business.

When considering either outsourcing or partnering, the potential impact on existing and future employees must be taken into account. Low morale, incompatible organizational climates, and the subsequent drop in worker productivity could negate any efficiencies or cost savings gained through outsourcing or partnering initiatives.

VI. CONCLUSIONS AND RECOMMENDATIONS

This study examined outsourcing and partnering as they apply to selected heavy equipment functions at the Naval Support Activity, Monterey Bay (NSAMB) and the City of Monterey. These two organizations were selected for this study because both entities are facing vehicle management challenges related to changing missions, diverse stakeholder requirements, and pressures to cut costs.

The data for this study were derived by reviewing business practices and industry publications associated with managing selected heavy equipment. Relevant financial and maintenance data were compared between the two entities, and semi-structured interviews were conducted with a total of 15 individuals from both organizations, including civilian and military managers, comptroller personnel, and various customers and primary stakeholders. An A-76 cost analysis of street sweeper and storm drain maintenance functions was performed to determine the most cost-effective alternatives for managing these functions. A-76 quantitative data were analyzed and compared in Chapter IV. Data results form the basis for conclusions and recommendations regarding outsourcing and partnering initiatives. This study concludes with suggestions for further study concerning outsourcing and partnering initiatives as emerging alternatives for military organizations.

Conclusions and recommendations are presented for the following research questions:

Primary Research Question: Are outsourcing or partnering appropriate business practices for NSAMB and the City of Monterey to reduce costs and/or improve the efficiencies of street sweeping and storm drain maintenance functions?

Secondary Research Questions:

1. *Are the present organizational climates at NSAMB and the City of Monterey conducive to outsourcing and/or partnering as future alternatives?*

2. *How do street sweeping and storm drain maintenance functions at the two organizations compare in terms of cost efficiencies?*

3. *Would outsourcing or partnering reduce street sweeping and storm drain maintenance costs at NSAMB and the City of Monterey?*

A. ADOPTION OF OUTSOURCING OR PARTNERING AT NSAMB AND THE CITY OF MONTEREY

1. Conclusions

Primary Research Question: Are outsourcing or partnering appropriate business practices for NSAMB and the City of Monterey to reduce costs and/or improve the efficiencies of street sweeping and storm drain maintenance functions?

For NSAMB, partnering initiatives with the City of Monterey could reduce NSAMB's costs for street sweeping and storm drain maintenance. However, organizational climate incompatibilities would need to be assessed and managed for a successful partnership.

For the City of Monterey, partnering with NSAMB would reduce per-unit costs. Similarly, organizational climate issues would need to be addressed commensurate with financial objectives.

For the City of Monterey, outsourcing its sweeper function to private industry is <u>not</u> a cost-effective alternative.

Based on quantitative data collected from the NSAMB and City of Monterey Public Works Departments and San Francisco Bay area heavy equipment businesses, the

cost of NSAMB's in-house street sweeping function appears comparable to the alternatives offered by private industry outsourcing. From a purely cost standpoint, there is no apparent advantage in leasing equipment from private industry. While the lease option would allow NSAMB to avoid the costly overhead expenses and depreciation associated with owning its own equipment, the high costs of equipment leasing in the private sector negate potential gains.

Interviews with City public works personnel indicate that the City has excess labor and equipment capacity to continue insourcing sweeper business from neighboring cities and other public organizations. While determining sweeper utilization rates is beyond the scope of this study, such data would help verify the extent to which the City could continue to insource sweeping business without adversely impacting sweeper equipment life cycle and maintenance costs.

Because NSAMB storm drain maintenance is small in scale, it is <u>not</u> economically feasible to outsource this function to private industry.

Data analysis in Chapter IV suggests that outsourcing NSAMB's storm drain maintenance functions would cost triple the amount required to perform these services in-house. This cost comparison assumes no off-setting reduction in the civilian work force by outsourcing storm drain cleaning equipment maintenance. There may be reasons to assume that some maintenance staff reductions would occur, but verifying these reductions is beyond the scope of this thesis.

In recent years, NSAMB has downsized its personnel and is bracing for another potential reduction in force (RIF). A CNO directed A-76 study is exploring the possibility of outsourcing all NSAMB public works functions. One result of downsizing and restructuring is that some civilian employees perform multiple tasks, which are not reflected in their official position descriptions (PDs). While the Human Resources Office (HRO) may attempt to re-write PDs to match the tasks performed, rapid change within the command has made this task difficult. If further RIFs are based on current PDs,

personnel positions that maintain storm drain cleaning equipment could be indirectly eliminated if the personnel who perform such tasks fill positions that are independently targeted for outsourcing or elimination. Therefore, staff reductions directly related to storm drain cleaning equipment would not make outsourcing a cost-effective alternative.

The City of Monterey is better off purchasing and maintaining storm drain equipment than outsourcing the function via equipment leases.

Data analysis in Chapter IV indicates that the least expensive alternative for the City is to perform its storm drain maintenance in-house, using its own equipment and maintenance personnel. While private sector equipment leasing may allow the City to avoid costly annual depreciation expenses, the high costs of leasing a Vactor truck on a weekly or monthly basis outweigh the potential cost savings. Owning the equipment also affords the City flexibility to respond to community needs, especially when unseasonably wet weather increases the need for Vactor services.

2. Recommendation

NSAMB and the City of Monterey should consider a partnering arrangement for their street sweeping and storm drain maintenance functions. Organizational climate differences should be assessed and relationship development crafted and monitored.

Forming a partnering arrangement between NSAMB and the City of Monterey (similar to the DLI–Monterey arrangement discussed in Chapter V) would give NSAMB decided flexibility in controlling its sweeper costs. The City would also benefit by the arrangement, increasing its sweeper revenues, reducing per-mile sweeper costs, and fostering positive community relations. From a monetary standpoint, such a partnering

arrangement would provide NSAMB with quality sweeper services at a lower cost than outsourcing or in-house operations.

B. ORGANIZATIONAL CLIMATE

1. Conclusion

Research Question: Are the present organizational climates at NSAMB and the City of Monterey conducive to outsourcing and/or partnering as future alternatives?

The present organizational climate of NSAMB does not appear conducive to outsourcing and/or partnering initiatives.

Based on interviews with four departmental managers and employees, and supported by the literature regarding outsourcing and partnering discussed in Chapter II, it appears that NSAMB's present organizational climate is not conducive to outsourcing or partnering initiatives. An important characteristic of successful outsourcing and partnering is managing the relationships involved, ensuring key stakeholders (internal and external) are satisfied and the relationship between the organization and its stakeholders is maintained and monitored.

An overriding theme in the NSAMB interviews is the lack of trust in leadership. Many employees felt that command leaders do not value their work or contributions to command mission. Furthermore, the interviews indicated there is no department strategic plan that considers employees and their value to the organization. These factors offer partial explanation of the current low level of trust and morale within the organization. Interview respondents indicated they do not trust the departmental leadership to support them in finding new jobs in the event of another RIF or the decision to outsource their positions. This perception creates an unstable working environment that is resistant to the magnitude of change typically encountered in outsourcing or partnering.

Climate issues such as low morale may negate the cost advantages gained through partnering. This could occur if morale continued to decline after partnering is implemented, effectively reducing productivity in other NSAMB activities to offset cost advantages in street sweeping and storm drain cleaning. As noted in Chapter V, industry literature tends to promote the cost advantages of outsourcing (and partnering to a lesser degree) but pays little attention to improving the personnel relationships of affected employees. Management must ensure all personnel needs are properly addressed for cost savings and worker productivity to improve.

The City of Monterey's organizational climate appears more conducive to an outsourcing and/or partnering arrangement. Interviews with management and employees indicated that both trust and morale within the organization are high. Although the public works organization must deal with cost cutting pressures and develop innovative ways to improve its efficiency, it does so in a relatively stable environment where high levels of trust and morale are apparent.

2. Recommendation

NSAMB PWD leadership needs to improve its relationship with its employees and develop a strategy to address employees needs and their value to the organization.

The military leadership should reevaluate its relationship with all departmental employees. Based on the literature review in Chapter II, when work is transferred from the public to the private sector, good employee transition plans are essential and need to come from the top leadership. The literature directly links the successes and failures of outsourcing and partnering to the attitude and support of organizational leadership. If organizational leadership is viewed as indifferent or passive, then the change will not be accepted by the organization.

In addition, leadership should move quickly to minimize morale problems. NSAMB management could demonstrate its commitment to employees by making employees a high priority and being proactive in fostering good working relationships. This would reinforce the idea that employees are the command's most valuable asset. Even though management is encountering its own high level of stress, meaningful dialogue with employees and improved relationships would provide strong leverage for dealing with future challenges.

Based on the literature, poor communications contribute to an adversarial atmosphere and reduced morale. Trust, respect, and clear communication critical as NSAMB undertakes the CNO directed A-76 study to explore outsourcing the command's entire public works function. The command needs the full commitment and honest input of its employees to develop accurate and concise performance work statements if it is to effectively compete to keep the work in-house or enter into a successful outsourcing or partnering agreement. Command leaders can remedy much of the perceived communications shortfalls by developing employee transition plans and showing their personal commitment to keeping employees apprised of changes in their work status via regularly scheduled Captain's calls or public works meetings with military leaders.

C. COST EFFICIENCIES

1. Conclusion

Research Question: How do street sweeping and storm drain maintenance functions at NSAMB and the City of Monterey compare in terms of cost efficiencies?

The City of Monterey performs street sweeping functions at nearly one-half of NSAMB's cost.

From data analysis in Chapter IV, the City of Monterey appears more efficient in performing its sweeper function than NSAMB due to economies of scale; the City's cost

for in-house sweeps ($ 61.52 per mile) within the city limits is approximately one-half that of NSAMB ($ 123.34 per mile). The City's cost advantages increases when insourced business from other municipalities is factored in, effectively reducing costs to $50.10 per mile. The City also utilizes an activity based costing system, which helps it monitor and compare its costs to sweeping benchmarks.

The City of Monterey performs its storm drain maintenance function in-house at a substantially lower cost than NSAMB.

Comparing Chapter IV data for storm drain maintenance, the City's in-house cost per catch basin ($146.52) is less than one-half that of NSAMB ($311.79). As with its sweeping functions, the City maintains low storm drain maintenance costs due to economies of scale. With 919 catch basins to service annually, the City is responsible for more than eight times the number of basins NSAMB services.

2. Recommendation

The City of Monterey should expand its partnering arrangements to further decrease its street sweeping and storm drain maintenance costs.

Because NSAMB street sweeping and storm drain cleaning are relatively small operations compared to those of the City of Monterey, it is to the City's advantage to enter into a partnering arrangement, thereby further decreasing its per-unit costs for these functions. Given the comparatively small capital and labor required to maintain NSAMB's functions, the City could take on these additional responsibilities without appreciably increasing its equipment maintenance and vehicle life cycle costs.

D. EVALUATION OF ALTERNATIVES

1. Conclusion

Research Question: Should NSAMB and the City of Monterey outsource or partner to reduce street sweeping and storm drain management costs?

Partnering is the best solution for reducing street sweeping and storm drain management costs for both NSAMB and the City of Monterey.

Based on the literature reviewed in this study, "the most successful government/contractor relationships come when the two view each other as partners, not adversaries" (CNA, January 1997). Not only is partnering more advantageous from a cost standpoint, but it also can be implemented without strict regulation. Demonstration legislation discussed in Chapter II has paved the way for such partnering arrangements, and there are local case studies that demonstrate the efficacy of such initiatives.

2. Recommendation

NSAMB and the City of Monterey should partner to reduce selected heavy equipment management costs.

Partnering would enable NSAMB to avoid some of the outsourcing disadvantages listed in Chapter V. Partnering depends on a collective vision between the organization and avoids the potential loss of management control found in many outsourcing contracts. It would help NSAMB avoid costly, time-consuming A-76 studies to consider outsourcing the functions to private industry. Finally, partnering is likely to cause less disruption in the working environment than outsourcing, leading to a more stable environment and improved morale.

E. FOLLOW-ON STUDIES

1. Investigate best management practices that make outsourcing and/or partnering viable for military organizations.

2. Explore technological innovations as alternative cost saving measures for military public works functions

3. Perform in-depth study of legislative restrictions on partnering initiatives.

4. Perform an A-76 study of all NSAMB public works functions that weighs the merits of outsourcing, strategic sourcing, and partnering.

5. Perform an A-76 lessons learned on outsourcing, examining the escalation of outsourcing costs due to contract structuring problems.

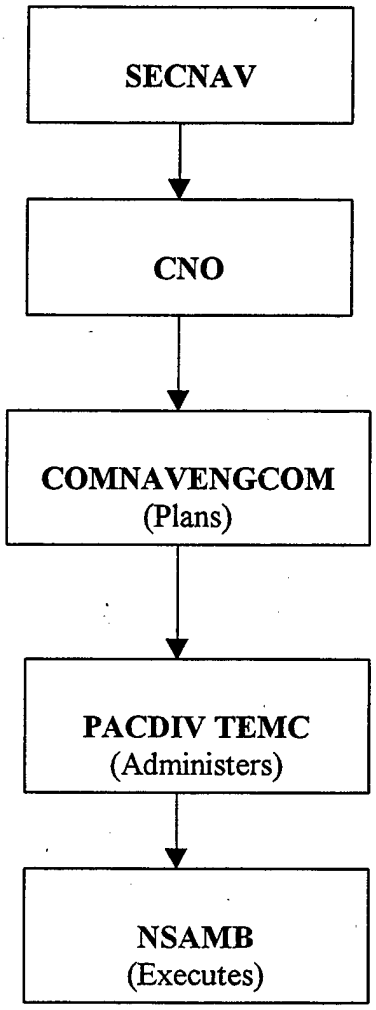
6. Analyze the current NSAMB organizational climate and suggest methods for improving morale and productivity of public employees in a downsizing environment.

APPENDIX A

Alpha Code	Description
A	Sedans
B	Bus-BOC-37 passengers and under
C	Bus-BOC-38 passengers and over
D	Bus-Integral
E	Station Wagon
F	Ambulances
G	Truck, ½ ton pickup
H	Panels-Carryalls-Truck ¼ to ¾ ton
I	Truck and Truck Tractor – 1 ton
J	Truck and Truck Tractor – 1½ to 2 ton
K	Truck and Truck Tractor – 2 ½ ton
L	Truck and Truck Tractor – 3 to 4 ton
M	Truck and Truck Tractor – 5 to 10 ton
N	Truck and Truck Tractor – 11 ton and over
O	Trucks, Special Purpose or Design
P	Trailers
Q	Aircraft Ground Support Equipment
R	Material Handling Equipment
S	Construction Equipment (utilization reporting required)
T	Construction Equipment (utilization reporting not required)
U	Grounds Maintenance Equipment
V	Railway Cars
W	Powered Railway Equipment
X	Fire Fighting Equipment
Y	Weight handling Equipment (WHE)
Z	Miscellaneous Transportation Equipment

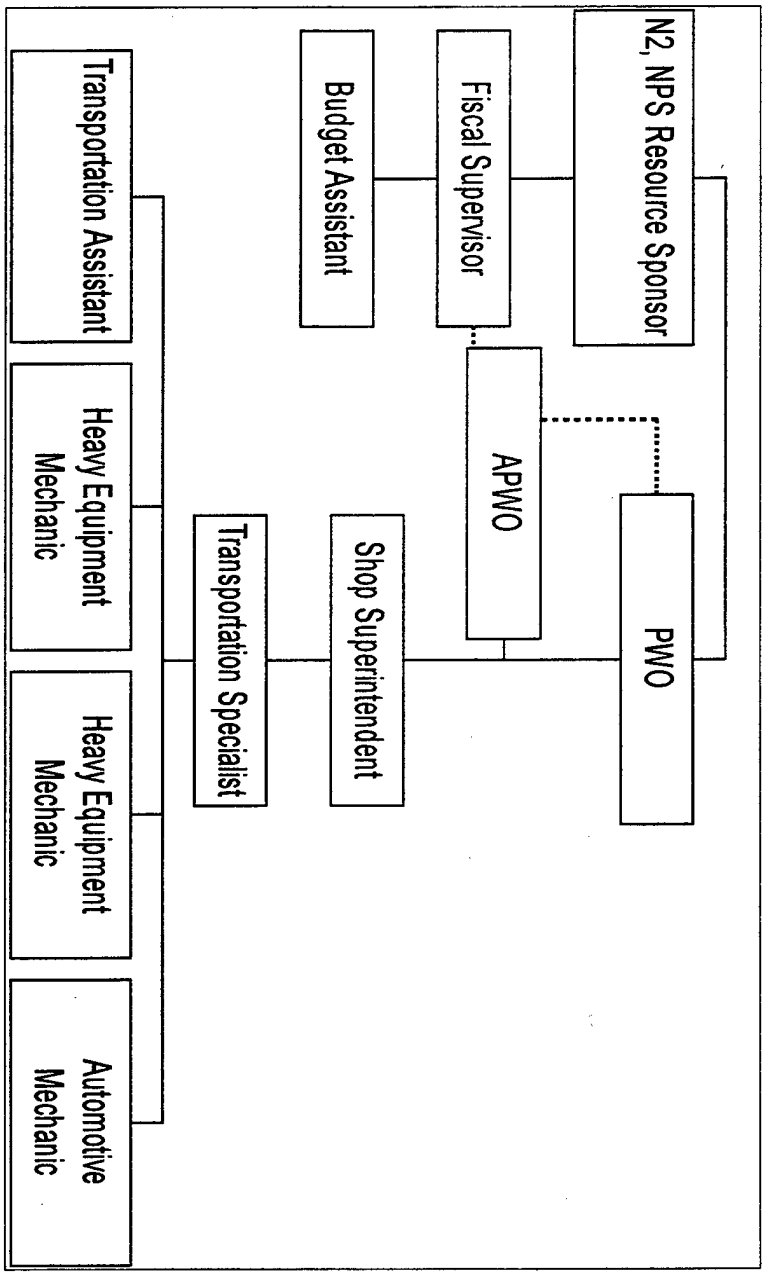
APPENDIX B

NAVY-WIDE TRANSPORTATION PROGRAM



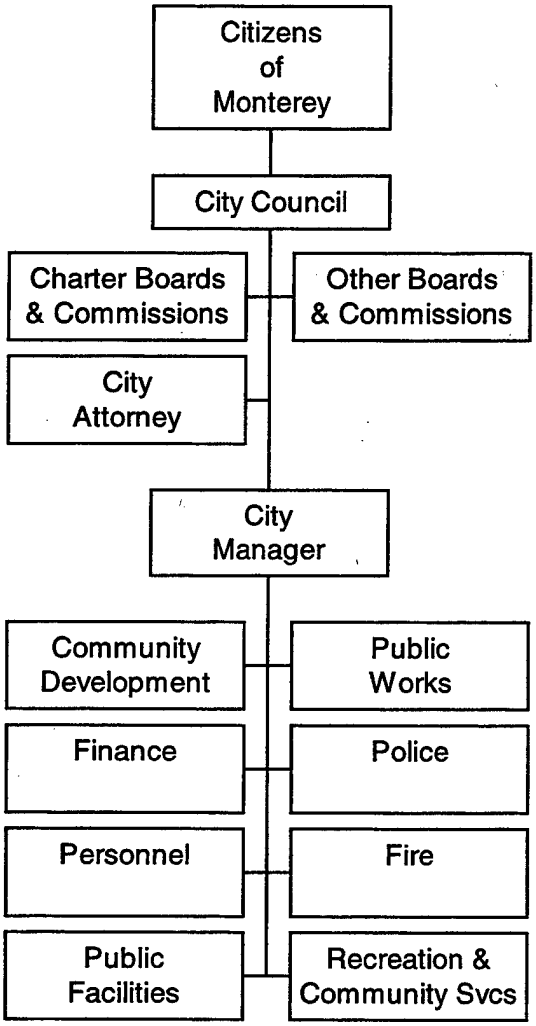
APPENDIX C

NSAMB Public Works Transportation Division



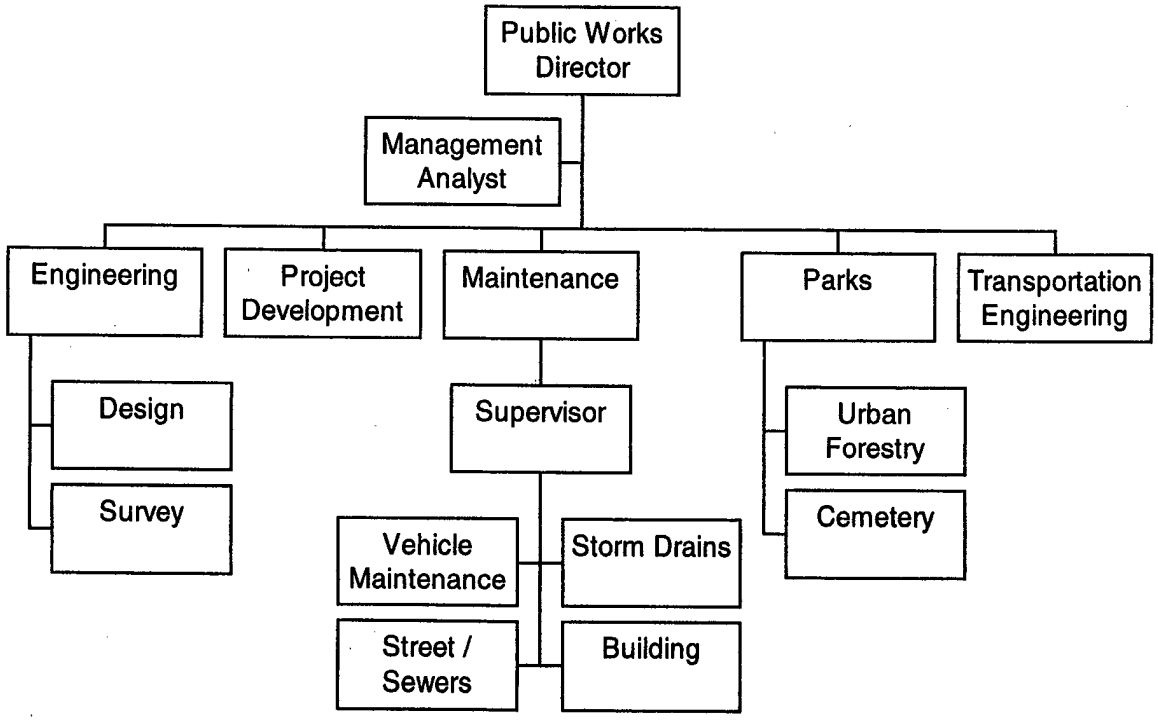
APPENDIX D-1

City of Monterey Organization



APPENDIX D-2

City of Monterey
Public Works Organization



1999 Federal Wage Schedule

AC-0015R

DoD Civilian Personnel Management Service (AW)
Arlington, Virginia 22209-5144 Issue Date: 20 April 1999

SUBJECT: Federal Wage System Regular and Special Production Facilitating Wage Rate Schedules for the Salinas-Monterey, California Wage Area

TO: Commanding Officers of Military Departments and DoD Component Installations in the Area

The schedules shown below have been established under authority of DoD Directive 5120.39, dated April 24, 1980, subject to the limitations contained in OPM Notice No. 98-62, dated 11 December 1998, and are to be applied in accordance with the provisions of 5 CFR Part 532 to all employees whose official duty station is located within the geographic boundary of the wage area definition shown on the reverse side.

WG WL-WS Grade	WG-Rates 1	2	3	4	5	WL-Rates 1	2	3	4	5	WS-WD-WN Rates 1	2	3	4	5	WD-WN Pay Level
1	9.91	10.32	10.73	11.15	11.56	10.90	11.35	11.80	12.26	12.71	14.69	15.30	15.91	16.52	17.14	
2	10.58	11.02	11.46	11.90	12.34	11.64	12.12	12.60	13.09	13.57	15.36	16.00	16.64	17.28	17.92	
3	11.24	11.71	12.18	12.65	13.12	12.36	12.88	13.40	13.91	14.43	16.02	16.69	17.36	18.03	18.69	1
4	11.91	12.41	12.91	13.40	13.90	13.10	13.65	14.20	14.74	15.29	16.69	17.39	18.09	18.78	19.48	2
5	12.59	13.11	13.63	14.16	14.68	13.84	14.42	15.00	15.57	16.15	17.37	18.09	18.81	19.54	20.26	3
6	13.26	13.81	14.36	14.91	15.47	14.58	15.19	15.80	16.41	17.01	18.04	18.79	19.54	20.29	21.04	4
7	13.93	14.51	15.09	15.67	16.25	15.32	15.96	16.60	17.24	17.88	18.71	19.49	20.27	21.05	21.83	5 1
8	14.60	15.21	15.82	16.43	17.04	16.06	16.73	17.40	18.07	18.74	19.38	20.19	21.00	21.81	22.61	6 2
9	15.26	15.90	16.54	17.17	17.81	16.79	17.49	18.19	18.89	19.59	20.04	20.88	21.72	22.55	23.39	7 3
10	15.94	16.60	17.26	17.93	18.59	17.53	18.26	18.99	19.72	20.45	20.72	21.58	22.44	23.31	24.17	8 4
11	16.61	17.30	17.99	18.68	19.38	18.27	19.03	19.79	20.55	21.31	21.24	22.13	23.02	23.90	24.79	9 5
12	17.28	18.00	18.72	19.44	20.16	19.01	19.80	20.59	21.38	22.18	21.92	22.83	23.74	24.66	25.57	10 6
13	17.95	18.70	19.45	20.20	20.94	19.75	20.57	21.39	22.22	23.04	22.77	23.72	24.67	25.62	26.57	11 7
14	18.61	19.39	20.17	20.94	21.72	20.48	21.33	22.18	23.04	23.89	23.78	24.77	25.76	26.75	27.74	8
15	19.29	20.09	20.89	21.70	22.50	21.22	22.10	22.98	23.87	24.75	24.94	25.98	27.02	28.06	29.10	9
										WS-16	26.26	27.35	28.44	29.54	30.63	
										WS-17	27.74	28.90	30.06	31.21	32.37	
										WS-18	29.39	30.61	31.83	33.06	34.28	
										WS-19	31.19	32.49	33.79	35.09	36.39	

APPENDIX F

CPI Indexes reprinted from The Economic Report of the President, 1998:

TABLE B–61.—*Consumer price indexes for selected expenditure classes, 1958–98*—Continued

[For all urban consumers; 1982–84=100, except as noted]

Year or month	Transportation								Medical care		
		Private transportation									
	Total	Total[2]	New vehicles		Used cars and trucks	Motor fuel	Motor vehicle maintenance and repair	Public transportation	Total	Medical care commodities	Medical care services
			Total[2]	New cars							
1958	28.6	29.5	50.1	50.0	24.0	23.4	25.4	20.9	20.6	46.1	17.9
1959	29.8	30.8	52.3	52.2	26.8	23.7	26.0	21.5	21.5	46.8	18.7
1960	29.8	30.6	51.6	51.5	25.0	24.4	26.5	22.2	22.3	46.9	19.5
1961	30.1	30.8	51.6	51.5	26.0	24.1	27.1	23.2	22.9	46.3	20.2
1962	30.8	31.4	51.4	51.3	28.4	24.3	27.5	24.0	23.5	45.6	20.9
1963	30.9	31.6	51.1	51.0	28.7	24.2	27.8	24.3	24.1	45.2	21.5
1964	31.4	32.0	50.9	50.9	30.0	24.1	28.2	24.7	24.6	45.1	22.0
1965	31.9	32.5	49.8	49.7	29.8	25.1	28.7	25.2	25.2	45.0	22.7
1966	32.3	32.9	48.9	48.8	29.0	25.6	29.2	26.1	26.3	45.1	23.9
1967	33.3	33.8	49.3	49.3	29.9	26.4	30.4	27.4	28.2	44.9	26.0
1968	34.3	34.8	50.7	50.7	.....	26.8	32.1	28.7	29.9	45.0	27.9
1969	35.7	36.0	51.5	51.5	30.9	27.6	34.1	30.9	31.9	45.4	30.2
1970	37.5	37.5	53.1	53.0	31.2	27.9	36.6	35.2	34.0	46.5	32.3
1971	39.5	39.4	55.3	55.2	33.0	28.1	39.3	37.8	36.1	47.3	34.7
1972	39.9	39.7	54.8	54.7	33.1	28.4	41.1	39.3	37.3	47.4	35.9
1973	41.2	41.0	54.8	54.8	35.2	31.2	43.2	39.7	38.8	47.5	37.5
1974	45.8	46.2	58.0	57.9	36.7	42.2	47.6	40.6	42.4	49.2	41.4
1975	50.1	50.6	63.0	62.9	43.8	45.1	53.7	43.5	47.5	53.3	46.6
1976	55.1	55.6	67.0	66.9	50.3	47.0	57.6	47.8	52.0	56.5	51.3
1977	59.0	59.7	70.5	70.4	54.7	49.7	61.9	50.0	57.0	60.2	56.4
1978	61.7	62.5	75.9	75.8	55.8	51.8	67.0	51.5	61.8	64.4	61.2
1979	70.5	71.7	81.9	81.8	60.2	70.1	73.7	54.9	67.5	69.0	67.2
1980	83.1	84.2	88.5	88.4	62.3	97.4	81.5	69.0	74.9	75.4	74.8
1981	93.2	93.8	93.9	93.7	76.9	108.5	89.2	85.6	82.9	83.7	82.8
1982	97.0	97.1	97.5	97.4	88.8	102.8	96.0	94.9	92.5	92.3	92.6
1983	99.3	99.3	99.9	99.9	98.7	99.4	100.3	99.5	100.6	100.2	100.7
1984	103.7	103.6	102.6	102.8	112.5	97.9	103.8	105.7	106.8	107.5	106.7
1985	106.4	106.2	106.1	106.1	113.7	98.7	106.8	110.5	113.5	115.2	113.2
1986	102.3	101.2	110.6	110.6	108.8	77.1	110.3	117.0	122.0	122.8	121.9
1987	105.4	104.2	114.4	114.6	113.1	80.2	114.8	121.1	130.1	131.0	130.0
1988	108.7	107.6	116.5	116.9	118.0	80.9	119.7	123.3	138.6	139.9	138.3
1989	114.1	112.9	119.2	119.2	120.4	88.5	124.9	129.5	149.3	150.8	148.9
1990	120.5	118.8	121.4	121.0	117.6	101.2	130.1	142.6	162.8	163.4	162.7
1991	123.8	121.9	126.0	125.3	118.1	99.4	136.0	148.9	177.0	176.8	177.1
1992	126.5	124.6	129.2	128.4	123.2	99.0	141.3	151.4	190.1	188.1	190.5
1993	130.4	127.5	132.7	131.5	133.9	98.0	145.9	167.0	201.4	195.0	202.9
1994	134.3	131.4	137.6	136.0	141.7	98.5	150.2	172.0	211.0	200.7	213.4
1995	139.1	136.3	141.0	139.0	156.5	100.0	154.0	175.9	220.5	204.5	224.2
1996	143.0	140.0	143.7	141.4	157.0	106.3	158.4	181.9	228.2	210.4	232.4
1997	144.3	141.0	144.3	141.7	151.1	106.2	162.7	186.7	234.6	215.3	239.1
1998[4]	141.6	137.9	143.4	140.7	150.6	92.2	167.1	190.3	242.1	221.8	246.8
1997: Jan	145.0	141.8	145.4	143.0	154.7	108.6	161.1	185.8	231.8	212.8	236.3
Feb	144.8	141.9	145.4	142.9	154.4	108.1	161.2	182.4	232.7	213.9	237.1
Mar	144.9	141.5	145.4	142.9	154.4	106.4	161.5	188.1	233.4	214.7	237.7
Apr	144.8	141.3	145.2	142.6	154.3	106.0	161.9	189.8	233.8	215.2	238.1
May	144.4	141.0	144.6	142.1	153.9	105.7	162.2	188.1	234.2	215.6	238.5
June	144.0	140.7	144.2	141.7	151.8	105.9	162.6	186.6	234.4	216.0	238.7
July	143.7	140.1	143.7	141.1	149.9	103.9	162.9	189.4	234.8	216.0	239.2
Aug	143.8	140.8	143.0	140.4	148.5	107.6	163.3	183.4	235.2	215.5	239.8
Sept	144.3	141.0	142.7	140.0	148.2	109.3	163.5	186.0	235.4	215.3	240.0
Oct	144.5	140.9	143.3	140.6	147.9	106.7	163.9	190.9	235.8	215.6	240.5
Nov	143.9	140.6	144.0	141.3	147.6	104.6	164.0	185.9	236.4	215.8	241.2
Dec	143.2	140.0	144.1	141.5	147.9	101.9	164.7	184.3	237.1	216.8	241.8
1998: Jan[4]	142.7	139.3	144.4	141.8	148.1	97.8	165.0	187.1	238.1	217.6	242.9
Feb	142.1	138.4	144.4	141.7	148.4	94.1	165.5	191.2	239.3	218.4	244.2
Mar	141.4	137.5	144.4	141.7	147.3	90.9	165.7	193.7	239.8	218.5	244.8
Apr	141.5	137.7	144.3	141.5	148.2	91.7	165.7	193.4	240.7	220.2	245.4
May	142.0	138.4	143.3	140.6	150.0	94.7	165.9	190.4	241.4	221.5	245.9
June	141.7	138.2	142.6	140.0	150.9	94.8	166.5	188.2	242.0	222.1	246.5
July	141.8	138.0	142.7	140.1	151.3	93.7	166.8	192.0	242.7	222.2	247.4
Aug	141.2	137.4	142.8	140.0	151.1	91.6	167.3	192.2	243.5	223.1	248.2
Sept	140.7	137.0	142.3	139.4	151.9	90.0	168.3	190.2	243.9	224.0	248.4
Oct	141.3	137.7	142.5	139.7	153.0	90.8	169.0	189.9	244.3	224.2	249.0
Nov	141.5	138.0	143.5	140.6	154.0	89.7	169.5	187.4	244.7	224.5	249.3
Dec	140.7	137.2	144.1	141.3	153.1	86.2	169.6	188.4	245.2	225.6	249.6

[4] See footnote 4, Table B–60.

Note.—See Note, Table B–60.

Source: Department of Labor, Bureau of Labor Statistics.

APPENDIX G

City of Monterey

To: Public Works Director

From: Management Analyst

Date: May 6, 1998

Subject: Vactor Truck FY 98/99

Bill:

The following memo summarizes the reasoning behind the intended purchase of a vactor truck:

Summary

The City should purchase a vactor truck for $ 142,000.00. This purchase will result in yearly cost savings of $ 8,500 - $ 21,200 comparing contractual services with in-house costs.

Additional within the contract for Base Operations and Maintenance we will rent out the vactor for $ 5,856.00 per year, thus lowering our own operation and maintenance costs.

The costs will be even lower if we can rent the vactor truck to neighboring communities.

Underlying Facts

All costs exclude the labor rate for the operator. When we rent a vactor truck we have to furnish an operator.

Price of a Vactor Truck	$ 142,000.00
Years of operation	15 years
Yearly Depreciation	$ 9,467.00
Yearly costs of operation	$ 9,336.00 (excludes depreciation)
City Catch Basins	919
[DLI Catch Basins	150]
Rental Charge Vactor Truck	$ 2,500 per week $ 6,800 per month(discounted)
Usage of Vactor truck '97	$ 6 weeks

Discussion

NPDES Phase II requires compliance in six prescriptive elements by the year 2002: one of those elements describes a policy of "Good Housekeeping/Pollution Prevention for Municipal Operations". The policy translates into the following yearly workload for the City of Monterey:

Catch Basins Cleaning	# basins
All catch basins before the start of the rain season	919
All catch basins after the first heavy rain falls	919
Periodically cleaning of "hot spots" during rain season	600
Total number of catch basins to be cleaned	2,438

The contract for Base Operations and Maintenance requires the JPA to clean catch basins twice a year:

Clean twice a year 150 catch basins	300

Total potential usage of the Vactor Truck: 2,738 catch basins or 18 weeks.

The impact of the NPDES Phase II regulations have been discussed with neighboring communities. They expressed an interest in renting a vactor truck form the City of Monterey.

Cost Analysis

Rental charges for 16 weeks (workload only City of Monterey):

16 weeks @ $2,500 = $ 40,000.00
4 months @ 6,800 = $ 27,200.00 *(Has to be entered into budget FY 98/99 to accommodate NPDES requirements under contractual services).*

In-House Costs	
Yearly Depreciation	$ 9,467.00
Yearly costs of operation	$ 9,336.00
Sum	$18,803.00
yearly cost savings:	$ 8,397.00 (monthly rate)
	$21,197.00 (weekly rate)

The cost savings of $ 8,397.00 assumes that we can actually rent the vactor truck on a monthly basis whenever we need it. However, vactor trucks are rented out to many other agencies, especially in a very rainy season. It is fair to assume that the rental charges will be actually higher based on weekly rates.

LIST OF REFERENCES

8th Quadrennial Review of Military Compensation, T*he Strategic Context for Making the Outsourcing Decision,* 1997.

Beer, M., Eisenstat, R. A., and Spector, B, "Why Change Programs Don't Produce Change," *Harvard Business Review*, 1990, 158-66.

Boal, K. B., and Bryson, J. M., "Representation, Testing and Policy Implication for Planning Processes," *Strategic Management Journal*, 1987, vol. 8, 211-231.

Bryson, J. M., *Strategic Planning for Public and Nonprofit Organizations*, Jossey-Bass Publishers, 1995.

Camm, Frank, *Expanding Private Production of Defense Services,* Contract DASW01-95-C-0059, Santa Monica CA: RAND, 1996.

Camp, R. C. *Benchmarking: The Search for Industry Best Practices That Lead to Superior Performance*, ASQC Quality Press, 1989.

Chiang, I. Y., et. al., "Use of Public-Private Partnerships to Meet Future Army Needs," Santa Monica, Ca :RAND, 1999.

CNO Washington DC, Subject: Outsourcing Program Advisory 97-1, 071301Z Aug 97

Commission on Roles and Missions of the Armed Forces, *Directions for Defense; Report of the Commission on Roles and Missions of the Armed Forces,* 24 May 1995.

Construction Industry Institute, *Guide for Implementation of CII Concepts: Best Practices for the Construction Industry*, Special Publication 42-2, Construction Industry Institute Barriers to Implementation Research Team, September 1995.

Department of Defense, *Improving the Combat Edge Through Outsourcing,* GPO, March 1996.

Department of Defense, *Defense Reform Initiative Report*, GPO, November 1997.

Department of Defense Inspector General, *Procedures for Monitoring Commercial Activities' Functions After Completion of A-76 Competitions*, Report No. 95-162, GPO, 31 March 1995.

Edelman, L., and others, *Partnering*, IWR Pamphlet 91-ADR-P-4, U. S. Army Corps of Engineers, December 1991.

Fesler, J., and Kettl, D., *The Politics of the Administrative Process*, Second Edition, Chatham House, 1994.

Freeman, R. E., *Strategic Management: A Stakeholder Approach*, Pitman Publishers, 1984.

Government Accounting Office, *DoD Functions Contracted Out Under OMB Circular A-76 Contract Cost Increases and the Effects on Federal Employees,* Report GAO/NSIAD 85-49, April 1985.

Government Accounting Office, *Challenges Confronting DoD as It Renews Emphasis on Outsourcing,* Report GAO/NSIAD 97-86, GPO, March 1997.

Government Accounting Office, *DoD Competitive Sourcing, Results of Recent Competitions,* Report GAO/NSIAD 99-44, February 1999.

Herman, R. D., et. al., *The Jossey-Bass Handbook of Non-profit Leadership and Management*, Jossey-Bass, 1994.

Hilke, John, *Cost Savings From Privatization,* Reason Foundation Homepage, March 1993.

Holzinger, Albert G., "Entrepreneurs to the Rescue," *Nation's Business*, 80: 20-28 (August 1992).

Ingram, R. W., and Baldwin, B. A., *Financial Accounting: Information for Decisions*, Third Edition, South-Western College Publishing, 1998.

Jones, R. E., "Partnering Between Government and Industry, an Acquisition Reform Initiative," Science Application International Corp. (SAIC), Arlington, Virginia, 1997.

Kanter, R. M., "Swimming in Newstreams: Mastering Innovation Dilemmas," *California Management Review,* 1989, vol. 31, 45-69.

Kooiman, J., ed., *Modern Governance: New Government-Society Interactions*, Sage Publications, 1993.

Kotter, J. P., *Power and Influence,* The Free Press, 1985.

Kotter, J. P., *Power in Management*, American Management Associates, 1979.

Kraus, W. A., *Collaboration in Organizations: Alternatives to Hierarchy*, Human Sciences Press, 1984.

Lipmen-Blumen, J., *The Connective Edge*, Jossey-Bass Publishers, 1996.

Locke, E. A., Shaw, K. N., Saari, L. M., and Latham, G. P., "Goal Setting and Task Performance," *Psychological Bulletin*, vol. 90, 1981, 125-152.

McIlroy, G., "Cutting the Cost of Government," *CMA Magazine*, vol. 70, no. 8, pp. 12-15, October 1996.

McLean, M. D, *Financial Analysis of Outsourcing the Helicopter Combat Support Mission Aboard Military Sealift Command Ships,* Master's Thesis, Naval Postgraduate School, Monterey, CA, December 1997.

Mintzberg, H., *Power In and Around Organizations*, Prentice-Hall, 1983.

Mitroff, I. I., *Stakeholders of the Organizational Mind*, Jossey-Bass Publishers, 1983.

Nagle, R., "Navigation/Remediation Partnerships," Coastal Engineering website. [http://bigfoot.wes.army.mil/6529.html]. 1999.

Office of Federal Procurement Policy, *Policy Letter 92-1, Inherently Governmental Functions*, GPO, 23 September 1992.

Office of Management and Budget, *Circular No. A-76 Performance of Commercial Activities, Revised Supplemental Handbook,* GPO, March 1996.

Office of Management and Budget, *Circular No. A-76 Performance of Commercial Activities,* GPO, 1983.

"Outsourcing Institute's Annual Survey of Outsourcing End Users," [http://www.outsourcing.com/howandwhy/surveyresults/main.html]. 1999.

Peters, T. J., and Waterman, R. H., Jr., *In Search of Excellence: Lessons From America's Best-Run Companies*, Harper Collins, 1982.

Pfeffer, J., *Managing with Power: Politics and Influence in Organizations*, Harvard Business School Press, 1992.

Pfeffer, J. and Salancik, R., *The External Control of Organizations: A Resource Dependence Perspective*, Harper Collins, 1978.

Pina, B. D., *Partnering at the Naval Facilities Engineering Command: An Effectiveness Study*, Master's Thesis, Purdue University, West Lafayette, Indiana, July 1993.

Pyles, Raymond A. and Cohen I. K., *Using Emerging Business Practices to Meet New Logistics Challenges,* Rand Issue Paper IP-107, Santa Monica CA: Rand, 1993.

Prahalad, C. K., Hamel, Gary, "The Core Competence of the Corporation," *Harvard Business Review,* 79-91 (May-June 1990).

Quinn, James Brian, Doorley, T. L., and Paquette, P. C., "Technology in Services: Rethinking Strategic Focus," *Sloan Management Review*: 79-87 (Winter 1990).

Robbert, Albert A., Gates, Susan M, Elliot, Marc N., *Outsourcing of DoD Commercial Activities: Impacts on Civil Service Employees,* Contract DASW01-95-C-0059. Santa Monica CA: RAND, 1997.

Roberts, N. C. and King, P. J., "The Stakeholder Audit Goes Public," *Organizational Dynamics*, American Management Association, 1989.

Root and Root Asociates, "Why Do You Need Partnering?" Root and Root Associates website. [http://www.rootandroot.com/index.html]. 1999.

Savas, E. S., *Privatization: The Key to Better Government,* Chatham NJ: Chatham House Publishers, Inc., 1987.

Schneider, Benjamin, O*rganizational Climate and Culture,* Jossey-Bass Publishers, 1990.

Serlin, Michael, "In the Ring," *Government Executive*, Sept, 1997, pp. 40-43.

Setear, J. K., et. al., "The Army in a Changing World: The Role of Organizational Vision", RAND, 1990.

Sheedy, W. M., *Partnering in the Public Sector*, Master's Thesis, University of Florida, Gainesville, Florida, 1997.

State Supply Commission, State of Western Australia, "Principles of Partnering," State Supply Commission website. [http://www.ssc.wa.gov.au]. June 1998.

Tighe, C. E., et. al., *Outsourcing Opportunities for the Navy,* Center for Naval Analysis, April 1996.

The Top Ten Reasons Companies outsource, The Outsourcing Institute Homepage, June 1999.

Townley Global Management Center for Environment, Health and Safety Special Report 1208-98-RR, "Innovative Public-Private Partnerships: Environmental Initiatives," The Conference Board, 1998.

University of Arizona, "What's a Partnership?" College of Agriculture website. [http://ag.arizona.edu/partners/what/what.html]. August 1997.

U. S. Army, "Partnering: An Overview," Industrial Operations Command (IOC) website. [http://www-ioc.army.mil/others/partnering/overvw1.html]. 1998.

U. S. Army, "Partnering for Success," Army Reinvention and Quality Initiatives Report – 1998. [http://www.hqda.army.mil/leadingchange]. 1998.

U. S. Army, Unique Partnerships Homepage. [http://pom-www.army.mil/partnerships/]. 1998.

U. S. Army Corps of Engineers, *Partnering: Alternative Dispute Resolution Series*, IWR Pamphlet-91-ADR-P-4, Institute for Water Resources, December 1991.

U. S. Army Corps of Engineers, *Partnering, Consensus Building, and Alternative Dispute Resolution*, IWR Working Paper 96-ADR-WP-8, Consensus Building Institute, May 1996.

U. S. Army Materiel Command, "Partnering for Success," U. S. Army Materiel Command website. [http://www.acqnet.sarda.army.mil/acqinfo/bluprint/backg.html]. 1999.

Young, D. R., "Executive Leadership in Nonprofit Organizations," in W. W. Powell, ed., *The Nonprofit Sector: A Research Handbook*, Yale University Press, 167-179.

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